*ISSN 1471-0498*

# DEPARTMENT OF ECONOMICS

# DISCUSSION PAPER SERIES

## INCOME MOBILITY OF THE ELDERLY IN GREAT BRITAIN AND THE NETHERLANDS: A COMPARATIVE INVESTIGATION

**Asghar Zaidi and Klaas De Vos**

Number 107

July 2002

Manor Road Building, Oxford OX1 3UQ

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## Editorial note

Asghar Zaidi is a D.Phil student at St Antony's College, Oxford University, and also a Research Officer in ESRC SAGE Research Group, located at the London School of Economics. Klaas De Vos is a researcher at CentER Applied Research, Tilburg University, The Netherlands.

A version of this paper is to be given at the 27th General Conference of the International Association for Research in Income and Wealth (IARIW), Stockholm, Sweden, 18 to 24 August 2002.

## Acknowledgements

The authors are grateful to comments by Tony Atkinson, Katherine Rake, Anne Scott, Mary Gregory and Holly Sutherland, and a continuous support and encouragement of Maria Evandrou, Jane Falkingham, Paul Johnson and Katherine Rake. This paper benefited from earlier work carried out jointly with Katherine Rake and Jane Falkingham (ESRC-Sage Discussion Paper no. 3), and from ongoing work with Joachim Frick (DIW-Berlin) and Felix Buechel (Max-Planck Institute of Human Development, Berlin and TU-Berlin). The sole responsibility of any errors and interpretations rests with the authors.

The data from the British Household Panel Survey used in this paper were made available through The Data Archive. The data were originally collected by the ESRC Research Centre on Micro-Social Change at the University of Essex.

The data for the Netherlands used in this paper are drawn from the Dutch Socio-Economic Panel (SEP) survey and were were provided by Statistics Netherlands through mediation of the Scientific Statistical Agency (WSA/NWO).

Neither the original collectors of the data nor the Data Archive, in the case of the UK data, bear any responsibility for the analyses or interpretations presented here.

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# Income mobility of the elderly in Great Britain and the Netherlands: a comparative investigation


## Abstract

This paper presents an empirical analysis of the income mobility of older people in Great Britain and the Netherlands, using longitudinal data from the British Household Panel Survey (BHPS) and the Dutch Socio-Economic Panel (SEP) for the period 1991 to 1997. Using the full potential of the panel data and applying appropriate regression analyses, we aim to quantify the impact of various life transitions and attributes on the income of older people in the two countries.

An introductory perspective is provided by a brief investigation of the relative economic status of the older population in both countries. We find that the Dutch elderly are on average better-off than their British counterparts, and that the relative position of the elderly has improved in both countries during the 1990s. This improvement, however, was almost entirely due to the better economic status of newly retired people who retire with incomes in addition to the basic state pension. We also provide a brief comparison of the pension systems operating in the two countries. The Dutch basic pension scheme is more generous than the British and, in general, the occupational pension schemes in the Netherlands also appear to be more rewarding in terms of earnings' replacement, in provisions for early retirement and in their coverage for survivors.

The empirical analysis on income mobility makes use of appropriate *bivariate* and *multivariate* tools. Equivalised household income is used to measure income mobility, and is smoothed over two years in order to reduce the impact of transitory fluctuations. Explanatory variables based on demographic and labour market attributes, as well as income, time–period, and sample attributes, are used to identify factors associated with income mobility in old age.

The results show that British elderly are more likely to experience income mobility than their Dutch counterparts. The mobility differential between the two countries is observed for both *upward* and *downward* income mobility. This differential is particularly noticeable for long-range *upward* income mobility (i.e. rises in annual income exceeding 15%). Undoubtedly, some of the income mobility and the differences between both countries may be artefacts due to measurement errors, but it can be safely concluded that for most people old age is not a period of stable fixed incomes.

The multivariate analysis of income mobility suggests that a number of demographic, labour market and income attributes significantly correlate with income mobility. In particular, the events of widowhood and changing living arrangements appear to have a notable impact on incomes of older people in both countries. The transition into widowhood is associated with both upward and downward income mobility in the Netherlands, but only with downward income mobility in Great Britain. This differential effect will largely be a consequence of differences in individual entitlements to basic pension for women in the two countries. A change in living arrangements of older people is associated with a higher likelihood of upward as well as downward income mobility in both countries.

This empirical exercise highlights the benefits and pitfalls of cross-national research on income dynamics within old age. Improvements in data quality and comparability as well as in methodology are necessary before clear scientific and policy conclusions may be drawn. This study should therefore be considered as a first step in our work on analysing income mobility in old age. Nonetheless, the results provide some pointers towards how the different social security systems affect the income risks associated with various attributes and life-course transitions experienced by older people.

## 1. Introduction

This paper seeks to capture the extent of income mobility experienced by the elderly in Great Britain and the Netherlands, and to compare and contrast the attributes and life-course transitions that may be seen to be related to income mobility *during* old age. To this end, this research departs from the common *static* view on the economic status of older people and, by using the full potential of the longitudinal datasets from the British Household Panel Study and the Dutch Socio-Economic Panel, adopts a *dynamic* perspective on older people's economic well-being. This shift of focus provides insights about the *processes* that generate changes in the economic welfare of older people.

The *comparative* aspect of income mobility of older people brings in additional analytical questions: how do different old age social security systems mitigate the income risks associated with various life-course transitions that older people experience. Thus, the comparative analysis of income mobility will highlight the relative importance of individual attributes (e.g. being a woman) and life-course events (e.g. becoming widow) in determining the income experience of older people living in different systems of old-age social provisions.

As argued in Zaidi et al. (2001), the study of income dynamics within old age is important for at least four reasons:

- *First*, such a study provides information on the extent to which older people experience falling or rising resources as they age. This constitutes a shift of focus from the mere forecasting of income at the time of retirement to a study of how income changes in the years after retirement. This has become important not least because rising human longevity and trends towards early retirement mean that people now spend longer periods of time in retirement .

- *Second*, most existing analyses of older people's incomes are based on cross-sectional data, and thus run the risk of providing a misleading picture of changes in the economic well-being of this subgroup. The use of cross-sectional data for year to year comparisons has a distorting effect, because it is based on a different population of pensioners each year: the data include new retirees in every subsequent year, who are generally better off than older retirees as a result of additional years with better occupational pension

coverage. By carrying out longitudinal analysis of the incomes of older people, a distinction between *cohort* and *age* effects on pensioners' income can be drawn.[1]

- *Third*, recent pension reforms towards privatisation have resulted in an increased *individualised risk*. While pay-as-you-go social security systems pool risks across generations, systems with private personal pensions expose individuals to a greater variety of financial market risks. For this reason, it is important to examine how such changes in the composition of pension income result in income mobility in old age.

- *Fourth*, in common with the whole population, the older population is likely to experience events that affect their incomes. However, the opportunities of older people to adjust their behaviour in response to changes in income may be restricted by compulsory retirement age and/or age-based discrimination in labour as well as capital markets. For this reason, income mobility in old age can be argued to be a 'bad' thing (see Atkinson et al. 1992, Zaidi et al. 2001), in particular if it concerns downward income mobility.

The limitations observed in the current empirical literature on cross-national comparisons of personal welfare of older people provides further motivations for our work in this paper. We note gaps in the following domains.

*Firstly*, most comparative analyses are based on annual cross-section data and therefore provide *snapshot* analyses of personal welfare of older people across countries (see *inter alia* Hagenaars et al. 1994, Tsakloglou 1996, Förster 2000, Smeeding 2001, and Disney and Whitehouse 2001). These analyses provide interesting insights about how older people fare in comparison to the overall population and how this has changed over time. However, they lack information on *income dynamics within* old age. How different old age social security systems perform in protecting older people from income hazards *during* the process of ageing has been hitherto overlooked.

In addition, although comparative studies on income dynamics in old age are beginning to appear (see, *inter alia*, Burkhauser et al. 2001) they focus largely on single events of interest

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[1] If people in the same birth cohort are observed over time, we observe what is referred to as the *age effect*. However, we are faced with an identification problem since the *pure* age effect cannot be identified separately from the *period effect*: we cannot tell whether changes in people's incomes are attributed to changes in their age or as part of an overall trend. We refer to Atkinson et al. (1992: 18-19) for a formal exposition of this problem.

(such as the exit from the labour force for retirement). Other cross-national studies on income dynamics focus largely on working-age populations (Heady et al. 1997 and Muffels et al. 1999). As argued above (and in detail in Zaidi et al. 2001), recent longevity trends, an early exit from the labour force and the nature of recent reforms in pension systems increase the importance of studying income mobility of this population *during* old age.

It can also be noted that most analyses that provide a cross-national comparison of changes in income in old age focus on changes in only one source of income: for instance Gruber et al. (1999) provide a comparison of the labour income replacement ratio, and thus provide only a partial picture of income dynamics in old age. The indicator in use does not capture how other sources of income and income of other family members change during old age.

These considerations motivate us to address the following research questions in this paper:

1. To what extent does the picture of changes in older people's economic status differ across two countries that vary in terms of institutional settings when we use income information from longitudinal surveys in which a complete picture of their economic resources – which includes individual resources as well as resources shared with other family members – is provided?
2. How are various attributes – age, gender, employment status, level and composition of income – and life-course transitions – becoming a widow, changing living arrangements – associated with income mobility during old age in the two countries?

To add an appropriate context to the study, we also provide a brief description of the main differences in the pension systems of the two countries as well as a comparative examination of the relative economic status of older people using data for 1991 and 1997. We start with a discussion of various methodological choices necessary to operationalise a cross-national comparison of income mobility during old age. This is followed by descriptive and multivariate analyses of income mobility experienced by older populations in the two countries, with a particular focus on how different attributes and life events are associated with income mobility in old age.

The remainder of this paper is organised in six sections. *Section 2* provides a description of the two datasets that we use in this paper. *Section 3* reports on different aspects of methodology adopted in the paper. *Section 4* provides the context for a comparative study on

income mobility, by comparing the pension systems in the two countries as well as the relative economic status of older people within each country. *Section 5* provides descriptive results on income mobility. *Section 6* provides a detailed discussion of our findings obtained from multivariate regression analyses. *Section 7* provides a synthesizing discussion as well as recommendations for further research.

## 2. The datasets for Great Britain and the Netherlands

### *2.1 A brief overview*

All empirical results for Great Britain have been produced by using data from the first seven waves of the British Household Panel Survey (BHPS), covering the period 1991 to 1997. For the Netherlands, use is made of the Socio-Economic Panel (SEP) survey, covering the same period. Both surveys provide longitudinal information on income and other attributes of private households. The salient features of these two datasets are summarised in Box 1.

The differences in the recording of the income variable between the two surveys may affect the comparability of the income mobility results across the two countries. The annual income variables present in the SEP are recorded directly from survey questions, whereas the annual income variable in the BHPS is derived using the current income in combination with other information on *receipt* of various sources of income during the year. In the following sections we provide a more detailed description of how annual income variable is computed in the two surveys.

### *2.2 The income variable in the SEP*

The net income variable available in the SEP is annual disposable household income in guilders per year. The information on the annual income variable is collected through direct questions asking about the amount received in different components of income throughout the year. Household-level aggregation is derived by adding the incomes of all household members.

Disposable income consists of cash income from all sources, including income from employment and self-employment, investments and savings, private and occupational pensions, and other market income, as well as social security and social assistance receipts. Imputed income from owner-occupied dwellings is also included whilst mortgage interest payments are deducted. Net income takes a ‘missing’ value for households in which an adult individual did not provide income data. Notably, disposable income (after taxes) is imputed by the data provider on the basis of information on all available components of income (before taxes) recorded in the survey.

**Box 1: Comparative overview of the BHPS and the SEP**

| | SEP | BHPS |
|---|---|---|
| ***Type and frequency of the survey*** | Longitudinal survey of private households, interviewing adults (aged 16+) in each year. | Longitudinal survey of households, interviewing adults (aged 16+ on 1st December of the survey year) in each year. |
| ***Population coverage*** | All private households in the Netherlands. | All private households in Great Britain in 1991; all subsequent years included the original sample members (and their new family members) of the 1991 sample |
| ***Years available*** | Income data from 1991 to 1997 are used, although relevant income data are available for the period 1984-1998. | Income data for 1991 to 1997, although data are available for all years till 1999 |
| ***Sample size*** | 5,000 households | 5,000 households<br>10,000 individuals |
| ***Response rate*** | Response rate of 52% was reported for the first wave (1984); replacement and subsequent additions made to the sample achieved the target of 5,000 households in each year. | Response rate in excess of 90% was achieved for the first wave data; most of the attrition is observed during the first two waves of the survey. |
| ***Income variable*** | Annual income data collected on the basis of direct questions on components of annual income.<br>The time-period covered for the annual income variable refers to the calendar year *prior* to the survey year. | Annual income data is derived on the basis of current income and information on the receipt of different sources of income during the previous year.<br>The time-period for the annual income year is from 1st September of the *previous* year to the end August of the *survey* year. |
| ***Income of new entrants and leavers*** | Income is recorded only for those people who were present at the time of the survey. | Income is recorded for only those people who were present at the time of the survey. |
| ***Sample of older people used in this paper*** | 2,856 observations | 4,677 observations |

The time period covered by the annual income variable refers to the calendar year prior to the year of the survey (e.g. for someone interviewed in April 1992, annual income refers to the year between 1.1.91 and 31.12.91). Moreover, annual household income is the sum of the annual incomes for all those who were present in the household at the time of the current year's interview. Income received by persons who died during the past year is not recorded. So, for persons who were widowed during the preceding year, the annual household income variable refers to the individual income of the surviving partner only.

### *2.3 The income variable in the BHPS*

Two types of net income variables are available in the BHPS: *current* net household income in pounds per *week*, and *annual* net household income in pounds per *year*. For both these measures, household-level aggregation is derived by adding the total incomes of all household members. Income consists of cash income from all sources, including income from employment and self-employment, investments and savings, private and occupational pensions, and other market income, as well as social security and social assistance receipts.[2] Both measures of net income are defined as 'missing' for households in which an adult individual refused to provide income data.

Net income used in this paper equals gross income minus direct taxes (i.e. income tax, and employee's contributions for national social insurance schemes).[3] The net income variable is computed using the gross income available in the survey and applying the tax rules for the corresponding years. Annual gross income recorded in the BHPS is essentially a synthetic measure since it is not derived directly from survey questions.[4] The annual measure of income is defined using the information for each respondent adult about current income as well as retrospective data about income receipt and labour market activity over the previous year.[5]

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[2] 'Housing costs' are not deducted from these variables, so they are 'before housing costs' income measures.

[3] For details on the construction of the *net* income variable, we refer to Bardasi et al. (1999).

[4] British surveys traditionally record only current income, thus the BHPS in this respect is an exception in providing an estimate of annual income.

[5] See Böheim and Jenkins (2000) for a more elaborate discussion on differences between annual and current income variables in the BHPS.

## 3. Empirical choices

As with any empirical enquiry, a host of decisions relating to methodological issues needs to be made before beginning to operationalise the concept of income mobility, and applying it to the dataset of older people. The principal elements of the empirical choices discussed in this section consist of the following items:

- The choice of the income variable
- The choice of the equivalence scale
- The smoothing of the income variable
- The income mobility variable
- Choice of the econometric model for multivariate analyses
- Definition of older people

Below we discuss what choices have been made for this paper and put forward arguments in favour of these choices.

### *3.1 The choice of the income variable*

The choice of the income variable is an important empirical choice in studies of income mobility. The principal choice elements are:

1. The income unit (i.e. *individual*, *benefit-unit* or *household* income?),
2. The time span within which income is measured (*annual* or *current* income?), and
3. The composition of income (*gross* or *net* income? *before* or *after* housing costs?).

Since individuals share resources with other members of their families and households, economic well-being will not be adequately described *by individual or benefit-unit* income alone. For these reasons, and for the fact that the focus of this paper is on (changes in) economic well-being of older people, we restrict ourselves to an analysis of household income. Likewise, we prefer net household income over gross income since the economic well-being of older people is better measured by their net economic resources.

*Time unit* refers to the time period over which income is measured and, as mentioned in Section 2, we use *annual* income in this paper. This choice is made mainly for the fact that the Dutch survey provides only the annual income variable. Annual income also has some notable virtues: it provides a better measure of households' normal economic resources than

current income. The basis for this argument is the fact that, even though a household's income may fluctuate from one month to the next, these transitory variations will have little impact on households' budgeting and consumption. Thus, differences in longer-term (annual) income may be seen to relate more closely to differences in households' welfare than differences in short-term (current) income.

For the empirical work carried out in this paper, one of the main problems in the use of annual income is linked to the event of widowhood. Since widowhood can happen any time during the year, the annual income variable may include an income record of time *before* and *after* the event. It is therefore difficult to single out the effect of widowhood on income mobility. In order to deal with this problem, we omit the year in which widowhood happened and compare income before the event with income after the event to determine whether this event can be linked to downward and/or upward income mobility.

### *3.2 The choice of the equivalence scale*

The choice of the equivalence scale is also crucial for this paper's empirical analysis, principally because changes in household income from one year to another might be triggered by changes in composition of the family only. By examining *equivalised* income, instead of the total household income, we allow for an automatic correction – albeit imprecise – for changes in family composition. Obviously, the outcome of this correction procedure is sensitive to the choice of the equivalence scale.

Different researchers choose to work with different equivalence scales depending upon the objective and scope of their research. Some prefer to use the most popular equivalence scale in the country in question,[6] others who perform cross-national comparisons seek to find a compromising scale.[7] Our choice for the equivalence scales used in this paper is influenced by the fact that this paper is principally about cross-national comparisons. We make use of the equivalence elasticity $\varepsilon=0.5$ which amounts to using the square root of household size as the equivalence scale. This equivalence scale is very close to the modified OECD

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[6] See, for instance, the use of McClements's equivalence scale (as proposed by McClements 1978) for most income distribution studies in Great Britain (see, *inter alia*, Department of Social Security 1997, Jarvis and Jenkins 1998).

[7] See, for instance, the use of the modified OECD equivalence scale in Hagenaars et al. (1994, 1998), and equivalence elasticity type scales used often in cross-national research based on Luxembourg Income Study and recently used in a major cross-national study by OECD (Förster 2000). We refer to De Vos and Zaidi (1997) for more discussion on the choice of equivalence scales.

equivalence scale,[8] which is currently popular for cross-national comparisons within the EU member countries. The equivalence elasticity $\varepsilon$=0.5 has the further advantage that it continues to incorporate economies of scale for additional adults.[9]

### *3.3 The smoothing of the income variable*

One of the main concerns that arise from our earlier research on income mobility (Zaidi et al. 2001 and Zaidi 2001) is that a great deal of income fluctuations are attributed to measurement error associated with a single year's income record. In order to improve upon the quality of our estimate of income mobility, in this paper we have chosen to smooth income by using a two-year average and compare two consecutive two-year averages to define income mobility. In our view, this smoothing procedure will provide us a better measure of changes in households' welfare than differences between two single year incomes.

Since our study consists of seven years (from 1991 to 1997), we work with four 4-year periods: 1991 to 1994, 1992 to 1995, 1993 to 1996 and 1994 to 1997. For someone who is present in the first four years (1991 through to 1994), income mobility is defined as:

$$Y_{mob} = \frac{m(Y_{1994}, Y_{1993}) - m(Y_{1992}, Y_{1991})}{m(Y_{1992}, Y_{1991})}$$

where $m(Y_{1992}, Y_{1991})$ is the two-year average using income in 1991 and 1992, and $m(Y_{1994}, Y_{1993})$ is the two-year average of the subsequent two years. Note that anyone who is present throughout the whole period of seven years will form four observations on income mobility. Also, the year in which widowhood happened is left out from the calculation of the two year average.

### *3.4 The income mobility variable*

As argued in Zaidi et al. (2001), the study of mobility merits attention only when it captures a change that has a broader social and economic relevance. A fundamental objective for studies of mobility should therefore be to distinguish between transitory, or insignificant, fluctuations around an individual's otherwise persistent characteristics and fluctuations which represent meaningful change (e.g. where a threshold is crossed). Following this argument, income mobility variable should be defined on the basis of a *significant* change in one's income.

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[8] The equivalence elasticity $\varepsilon$=0.5 will assign a scale of 1.4 for a couple, whereas for the same household unit the OECD-modified scale will give 1.5 and the McClements scales will give about 1.6. One may therefore criticise the choice of $\varepsilon$=0.5 as an overestimation of the household economies of scale.

[9] Although this advantage is not that useful for older people who are mainly single or two-persons households.

Accordingly, the income mobility variable will be discrete: either *binary* (i.e. income mobility or not) or *polychotomous* (i.e. different extent of upward and downward income mobility). In this paper, we restrict ourselves to a five category polychotomous variable that will be used as the dependent variable in a multinomial logistic regression model. The five discrete outcomes of this income mobility variable are defined and interpreted as:

1 = "Fall, more than 15%", $\Rightarrow$ Long-range downward income mobility

2 = "Fall, 5 to 15%", $\Rightarrow$ Short-range downward income mobility

3 = "less than 5% change", $\Rightarrow$ no income mobility

4 = "Rise 5 to 15%", $\Rightarrow$ Short-range upward income mobility

5 = "Rise, more than 15%" $\Rightarrow$ Long-range upward income mobility

The cut-offs of 5% and 15% are essentially arbitrary, but the fact that we have avoided an arbitrary dichotomisation that is common in ordinary two-outcome logistic models can be seen as an improvement. This income mobility variable, when used as a dependent variable in the multinomial regression model, will provide us important insights such as whether an event is associated with upward or downward income mobility, or both, and whether the event is associated with short-range or long-range mobility.

Moreover, by focussing on changes in individuals' own incomes, we restrict ourselves to applying an *absolute* concept of mobility. This concept needs to be distinguished from *relative* mobility that tracks changes in the relative ranking of individuals, households or subgroups within a population.[10]

Whether one prefers a relative or an absolute approach to measuring income mobility depends upon the weight one assigns to changes in one's relative position (within the reference society) in comparison to changes in one's own income. In reality, people are likely to be interested in both, since they are affected by not only changes in their own income but also how changes in their own income place them in comparison to the rest of the society. This study chooses absolute mobility, mainly on the basis of our view that when mobility concerns shorter periods (e.g. annual change) individuals are more likely to assign greater weight to absolute changes in income. This is due to the fact that it is difficult for someone to realise how his or her relative position in the society has changed within a short period.

[10] See Shorrocks (1993), Jarvis and Jenkins (1995) and Fields and Ok (1999) for a more detailed discussion on this distinction between relative and absolute concepts of income mobility.

However, over longer periods, it is likely that more weight is assigned to changes in one's relative position.

### *3.5 Choice of the econometric model for multivariate analyses*

Since our objective is to find the covariates of income mobility, and income mobility is defined in terms of changes in income that cross certain thresholds, it is obvious that we are working with econometric models that allow the dependent variable to be *discrete*. In this paper, we make use of the multinomial logistic regression model which is used in the situation when the dependent variable is discrete and consists of more than two categories. Within the multinomial logistic model, the objective is to model the odds of different income mobility outcomes as a function of its covariates.[11]

Next, we describe the multinomial logistic regression model that we use in this paper. Consider the outcomes *1, 2, ..., m* recorded in the dependent variable $Y_i$, and the explanatory variables given by the matrix $X$. In the multinomial logistic regression, we estimate a set of coefficients $\boldsymbol{b}^{(2)}$, ..., $\boldsymbol{b}^{(m)}$ corresponding to each outcome category:[12]

$$\Pr(Y=1) = \frac{1}{1+e^{Xb^{(2)}}+\ldots+e^{Xb^{(m)}}}$$

$$\Pr(Y=2) = \frac{e^{Xb^{(2)}}}{1+e^{Xb^{(2)}}+\ldots+e^{Xb^{(m)}}}$$

$$\ldots..$$

$$\Pr(Y=m) = \frac{e^{Xb^{(5)}}}{1+e^{Xb^{(2)}}+\ldots+e^{Xb^{(m)}}}$$

The relative probability of e.g. $Y = 2$ to the base category $Y = 1$ is

$$\frac{\Pr(Y=2)}{\Pr(Y=1)} = e^{Xb^{(2)}}$$

This ratio is commonly referred to as the *relative-risk-ratio*. The results that we produce using the multinomial logit model (Table 4 and 5) can be converted to the relative-risk-ratio by taking exponential of the coefficient.

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[11] McFadden (1974) was one of the first to propose this extension of binomial logistic regression and called it a discrete choice model. So, while the model is commonly referred to in econometric literature in these terms, in health and life sciences literature it is called the multinomial or polychotomous logistic regression model. Following Hosmer and Lemehow (2000), we also use the term multinomial in this paper.

[12] This is true when choosing *Y=1* as the base outcome, and thus setting $\boldsymbol{b}^{(1)} = 0$.

### *3.6 Definition of older people*

There is no universally accepted age above which a person is considered 'old'. There are at least three definitions of old age that are in use in the economics-of-ageing literature.[13] The first, very common, definition is based on each individual's own assessment of his or her labour market status. The second definition uses objective information on labour market status, such as the number of hours worked and the job search activity of people who are close to retirement age. Both these definitions approximate an entry into the old age period of life at the time of retirement from the labour market. The third definition uses the statutory retirement age (i.e. the age at which an individual becomes entitled to retirement and old-age social benefits) to define the onset of the old age phase.

For reasons discussed below, this paper makes use of this last definition, whereby an entry into the old age phase of life is approximated by the chronological age at which people become entitled to the old-age pension. This starts at 65 for men and 60 for women in Great Britain, and at 65 for both men and women in the Netherlands.

Any such chronological demarcation of old age has a clear implication: old age starts at a fixed age for all people of the same gender, irrespective of their labour market status (e.g. retirement status), state of health (e.g. physical frailty) and family status (e.g. widowed).[14] While this choice has these limitations, one vital advantage of this choice is that age is by definition an *exogenous* attribute of individuals, whereas other indicators of ageing are *endogenously* determined. Adoption of this definition also allows us to study diversity within older populations, in terms of labour market activity, health status and income (i.e. the endogenous variables).[15] Moreover, this choice is free from negative biases that arise from common myths and misconceptions about ageing and older people, such as the perception that older people are likely to be frail, ill or disabled, and may thus be a burden on communities and societies.

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[13] For a discussion on this issue, see Bardasi et al. (2000).

[14] See Arber and Evandrou (1993) for the important lifecourse transitions that lead to old age.

[15] Mainly for these reasons, the panel constituted by the U.S. National Institute on Aging – to provide recommendations for an international research agenda in meeting the challenge of population ageing – has also used a chronological demarcation of age categories to define the elderly (National Research Council 2001: 2). However, they use a slightly different definition as they refer to all those who are aged 65 or more as 'elderly'.

## 4. Cross-national perspective on income mobility: the context

In this section we provide a context for our empirical work on income mobility amongst older people in Great Britain and the Netherlands. First, we provide some essential information on the pension systems in the two countries.[16] Next, we assess of the relative economic status of older people in the two countries, by comparing *average income*, *poverty incidence*, and *the poverty severity* of the elderly and non-elderly population.

### *4.1 State provisions to pensioners*

An important part of the pension system in both countries is formed by the *basic state pension*, which is close to being universal. It is indexed in line with inflation only in Great Britain, whereas it is indexed in line with wage growth in the Netherlands. As a consequence, and also because the basic state pension is lower than the minimum subsistence level, pensioners in Great Britain will have to rely more often on other sources of income (private resources, or means-tested benefits) to maintain a minimum standard of living. Moreover, in Great Britain, entitlements for basic pensions are accumulated mainly by contributions made while participating in the labour market,[17] and thus certain subgroups are at a disadvantage. In particular, women often rely on their spouse's pension contributions for their income in old age and are likely to experience an adverse income effect at the death of their partners. In contrast, entitlement to the Dutch basic pension does not depend on the contributions made while in employment, but on residency status alone.

Moreover, a mandatory earnings-related state pension does not exist in the Netherlands. Although such a scheme exists in Great Britain, it has been losing its value over time – mainly as a consequence of the rise in popularity of occupational and private personal pensions and a reduction in the value of pensions received through this scheme.[18] In addition,

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[16] The information on the Dutch pension system is drawn from De Vos and Kapteyn (2001), Kapteyn and De Vos (1999) and Kremers (2000). The corresponding information on the British system is derived from Emmerson and Johnson (2001), Blundell and Johnson (1997), and Dilnot et al. (1994).

[17] Contributions are credited for spells of unemployment or sickness. Moreover, home responsibilities protection (HRP) is available for people who do not work or whose earnings are below the (annual) lower earnings limit because they are caring for children or for a sick or disabled person. HRP reduces the number of qualifying years needed for a full basic pension, and thus is less generous in comparison to the full credit given for e.g. spells of unemployment.

[18] The 1986 Social Security Act changed pension payments to the 20 per cent of average earnings over the whole of working life, instead of the 25 per cent of average earnings in the best 20 years of working life. This Act also brought in legislation by which the survivor's benefits would be reduced: originally a widow(er) could receive the full amount of his/her spouse's SERPs, but this was reduced to a half from April 2000.

in Great Britain, means-tested benefits serve as an important source of pensioners' incomes, mainly because the basic state pension is lower than the minimum subsistence level. The Dutch system also provides means-tested benefits, but pensioners are less likely to be subjected to means testing since the basic state pension is as high as the minimum social assistance level.

An additional part of the state provisions in Great Britain is the entitlement to free health coverage through the NHS. The elderly (aged 60+) receive an additional waiver of all prescription charges (about £6 per prescription). Like everyone else in the country, pensioners in Great Britain also receive other means-tested state benefits, such as the assistance in meeting housing costs and council tax. In the Netherlands, pensioners are eligible for subsidised health insurance, as well as rent subsidy. Similar to other groups, Dutch pensioners with low incomes may be exempt from paying certain local taxes. A notable difference between the two countries is that British pensioners are entitled to *additional* health and disability-related monetary benefits in their old age, whilst there are no such additional provisions for the Dutch elderly.

### *4.2 Private sources of pension income*

In both countries, a large proportion of people draw income from private sources of pension income. Occupational pension schemes are widespread, and provide a good replacement of earnings (close to 70%) for those who contributed to these schemes for most of their working life. The Dutch schemes appear to be more generous in terms of replacement of earnings and in their coverage for survivors. In addition, in both countries, an increasing number of people are opting for private personal pensions, although these schemes are more recent and more popular amongst the younger cohorts of the currently working age population.

The Dutch pension system, in private as well as in public schemes, also provides relatively generous incentives for early retirement from the labour market. As a result, Dutch elderly, and their partners, are less likely to remain associated with the labour market than their British counterparts.

All in all, despite the fact that occupational and private pensions are relatively widespread in both countries, state benefits make up the largest share of most pensioner incomes. Investment income and employment earnings are of even less importance, in particular in the Netherlands (see, e.g., Disney and Johnson, 2001)

### *4.3 Relative well-being of elderly people: Great Britain and the Netherlands*

Table 1 reports on the average (equivalent) income for the elderly and non-elderly population in 1991 and 1997 for both countries. We use median income as the measure of average income, mainly because of its insensitivity to extreme values. Furthermore, we assign each individual in the household the same level of income, thus treating household income as a pure public good. Use is made of annual net household income, equivalised using the square root of household size. Elderly and non-elderly are distinguished on the basis of the state retirement age.

In both countries the elderly have on average lower income than the non-elderly.[19] The relative economic position of the elderly in Great Britain appears to be worse than in the Netherlands.[20] This can partly be attributed to the fact that relative to average earnings, the basic state pension is smaller in Great Britain. Moreover, it appears that, on average, the Dutch occupational pensions are more generous in terms of replacing earnings.

Between 1991 and 1997 the elderly have experienced a sharper rise in income than the non-elderly – 28% in Great Britain; 19% in the Netherlands. However, this result can largely be attributed to the fact that, on average, the new elderly (those who reached the state retirement age after 1991) had a much better economic status compared to those who were already retired in 1991, mainly because they spent a longer time in work with better pension coverage. As a consequence, an increasing number of the new elderly receives income on top of the minimum state pension. The effect of the inclusion of the new elderly – raising the average economic status of the elderly – becomes more evident when we compare the 1997 results for all elderly (column A) with those who were already present in the sample of elderly in 1991 (column B). The rise in average income for this group was clearly smaller as compared to column A, although it still exceeds the rise for the non-elderly people.[21] This may be partly due to selective mortality (poor people die sooner than rich people).

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[19] The non-elderly population includes all adults below state retirement age as well as children.

[20] We compare average income of the elderly population relative to the average income of the non-elderly population, and for this purpose we do not need to convert national monetary units to a single '*numéraire*' (of which one unit can buy the same amounts of goods and services in both countries in a specific year). We refer to Smeeding and Rainwater (2002) for a very useful discussion on issues relevant to the cross-national comparison of average incomes.

[21] In order to compare income in real terms, all income amounts are expressed in constant prices (British income figures are given in terms of 1997 prices, and the Dutch income figures are expressed in 1995 prices).

**Table 1: Cross-national comparison of relative well-being of older people in Great Britain and the Netherlands between 1991 and 1997**

| ***Great Britain*** | **1991** | **1997** *(A)* | **Ratio** ***'97/'91*** | 1997 *(B)* | **Ratio** ***'97/'91*** |
|---|---|---|---|---|---|
| 1. Median income (eq., annual, in 1997 prices, in £) | | | | | |
| *1.1 Elderly population* | 6,022 | 7,696 | **1.28** | 7,025 | **1.17** |
| *1.2 Non-elderly population* | 9,480 | 10,356 | 1.09 | 10,578 | 1.12 |
| *Total* | 8,900 | 9,903 | 1.11 | 10,072 | 1.13 |
| 2. Poverty rate (60% cut-off) | | | | | |
| *2.1 Elderly population* | 39.3 | 29.2 | **0.74** | 36.3 | **0.92** |
| *2.2 Non-elderly population* | 17.6 | 18.7 | 1.06 | 16.9 | 0.96 |
| *Total* | 21.0 | 20.3 | 0.97 | 19.4 | 0.92 |
| 3. Median poverty gap | | | | | |
| *3.1 Elderly population* | 18.0 | 22.0 | **1.22** | 23.7 | **1.32** |
| *3.2 Non-elderly population* | 24.7 | 29.2 | 1.18 | 27.0 | 1.09 |
| *Total* | 23.1 | 27.9 | 1.21 | 25.9 | 1.12 |
| 4. Share in bottom decile of the total population | | | | | |
| *4.1 Elderly population* | 15.2 | 11.6 | **0.76** | 15.0 | **0.99** |
| *4.2 Elderly widows* | 27.1 | 20.3 | 0.75 | 22.6 | 0.83 |
| *4.3 Elderly aged 80+* | 27.4 | 20.2 | 0.74 | 20.2 | 0.74 |

| ***The Netherlands*** | **1991** | **1997** *(A)* | **Ratio** ***'97/'91*** | 1997 *(B)* | **Ratio** ***'97/'91*** |
|---|---|---|---|---|---|
| 1. Median income (eq. , annual, in 1995 prices, in hfl) | | | | | |
| *1.1 Elderly population* | 20,630 | 24,598 | **1.19** | 22,866 | **1.11** |
| *1.2 Non-elderly population* | 28,500 | 29,911 | 1.05 | 29,925 | 1.05 |
| *Total* | 27,765 | 29,403 | 1.06 | 29,497 | 1.06 |
| 2. Poverty rate (60% cut-off) | | | | | |
| *2.1 Elderly population* | 18.7 | 14.3 | **0.76** | 18.6 | **0.99** |
| *2.2 Non-elderly population* | 9.5 | 10.9 | 1.15 | 9.5 | 1.00 |
| *Total* | 10.4 | 11.3 | 1.09 | 10.1 | 0.97 |
| 3. Median poverty gap | | | | | |
| *3.1 Elderly population* | 6.5 | 7.0 | **1.08** | 7.0 | **1.08** |
| *3.2 Non-elderly population* | 15.9 | 20.3 | 1.28 | 19.9 | 1.25 |
| *Total* | 12.0 | 18.0 | 1.50 | 18.0 | 1.50 |
| 4. Share in bottom decile of the total population | | | | | |
| *4.1 Elderly population* | 17.8 | 11.6 | **0.65** | 15.2 | **0.85** |
| *4.2 Elderly widows* | 25.7 | 17.5 | 0.68 | 24.6 | 0.96 |
| *4.3 Elderly aged 80+* | 32.3 | 23.1 | 0.72 | 27.5 | 0.85 |

*(A)* This column reports on all elderly present in the 1997 wave
*(B)* This column makes use of only those who were present (and elderly) in both 1991 and 1997 wave.

Table 1 also reports on the poverty incidence amongst the elderly and non-elderly populations in Great Britain and the Netherlands, using 60% of median income in each year as the poverty line.[22] In both countries, elderly are more likely to be poor than non-elderly but the differences are larger in 1991 than in 1997, and more pronounced in Great Britain than in the Netherlands. Poverty incidence for the elderly as well as the non-elderly is almost twice as high in Great Britain than in the Netherlands.[23]

Between 1991 and 1997 – using the 1997(A) results – the poverty rate declined significantly for the elderly population: from 39.3% to 29.2% in Great Britain, and from 18.7% to 14.3% in the Netherlands. Notably, for the elderly who were already present in the 1991 sample (1997(B)), the change in the poverty rate was not significant.

These results caution us to be careful when interpreting inter-temporal improvements in the economic status of older people. The use of the panel dataset provided the opportunity to distinguish the 1997(A) and 1997(B) results, and this distinction appears to be important in almost all results presented in this section.The poverty severity index, measured by the median income short-fall[24] of the poor to the poverty line, is higher for the non-elderly than for the elderly. This holds for both countries, and in 1991 as well as in 1997. Similar to the poverty rate, the poverty gap for the elderly is significantly higher in Great Britain than in the Netherlands. This can partly be attributed to the fact that minimum benefits in Great Britain are a smaller proportion of the national average than that in the Netherlands. Between 1991 and 1997 – comparing 1991 and 1997(A) – poverty severity increased for the elderly in Great Britain, despite the fact that the poverty incidence decreased. This suggests that in Great Britain elderly who remained in poverty became poorer. This becomes more obvious when we compare 1991 and 1997(B) results: the poverty gap is about 30% higher in Great Britain for the group of older people who survived between 1991 and 1997. For the Netherlands, we find no evidence of rising or falling poverty severity. The poverty severity difference between the two countries may also partly be attributed to the fact that median income (and thus the poverty line) rose faster in Great Britain (11% as compared to 6% in the Netherlands).

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[22] This cut-off is essentially arbitrary, but is now commonly used. We refer to Atkinson et al. (2002) and De Vos and Zaidi (1998) for a discussion on the issues related to the choice of the poverty line for the purpose of a comparison across EU countries.

[23] This result is in line with the findings of Smeeding (2001).

[24] See Atkinson et al. (2002: 117) for an argument in favour of the median poverty gap instead of the commonly used mean poverty gap.

The last rows of Table 1 shows the percentage of elderly in the bottom decile of the total population, as well as this percentage for two specific subgroups of older people - widow(er)s and those aged 80+ - which stand out as the most deprived subgroups in both countries. Between 1991 and 1997 (A) the relative position of the elderly improved: in 1991 about 15% of the British elderly were in the lowest decile, compared to 11.6% in 1997, while the corresponding figures for the Netherlands are 17.8% and 11.6%. Consistent with other results, this improvement in the relative economic status almost disappears when we look at the 1997(B) figures.

In both countries, in 1991 and 1997, the overlapping subgroups of elderly widows and the very old (aged 80+) are significantly more at a disadvantage than the rest of the population. However, comparing 1991 and 1997(A), we note that the relative position of widow(er)s has improved: the proportion in the bottom decile decreased from 27.1% to 20.3% for Great Britain and from 25.7% to 17.5% for the Netherlands. This probably reflects that a greater percentage of women in both countries now retire with pension rights of their own, and are less likely to be affected by their spouse's death, but it may also be attributed to improvements in the occupational pensions of the retirees in general. When comparing 1991 and 1997(B) we find almost no changes in the relative position of elderly widows in the Netherlands, but there appears to be an improvement in the relative economic status of elderly widows and those aged 80+ in Great Britain.

The information presented in this section provides the context for our results on income mobility and its correlates in the next sections. Whilst on average the income position of the elderly appears to be improving in both countries, partly as a result of increased coverage of occupational pensions, it will be interesting to see how individual elderly are doing on a year-to-year basis.

## 5. Cross-national perspective on income mobility: descriptive results

In this section, we present descriptive results on income mobility for older people in Great Britain and the Netherlands. These results show the bivariate association between income mobility and various attributes and motivate the selection of explanatory variables for the multivariate analysis in Section 6. As mentioned in Section 3, income mobility is measured using a five-category discrete variable, which subdivides between income decreases of more than 15%, income decreases between 5 and 15%, 'stable' income, income rising between 5 and 15% and income rising more than 15%.

Table 2 provides the relative size of the various subgroups of the elderly in the two countries. Table 3, on the other hand, presents the income mobility results for the older population as a whole as well as for various subgroups. An immediate conclusion is that there is a considerable extent of income mobility amongst older people, and that it is significantly higher in Great Britain than in the Netherlands. In particular, the proportion of those with no income mobility (less than 5% change) is considerably higher in the Netherlands (41.5%) than in Great Britain (28.6%). Admittedly, some of the income mobility and the differences between both countries may be artefacts due to measurement errors but it can safely be concluded that for most people old age is not a period of stable fixed incomes.

The mobility differences are particularly notable for *long-range* income mobility. About 17% of all older people in Great Britain observed long-range *downward* income mobility, as against 12% in the Netherlands. The difference is larger for long-range *upward* income mobility: 21% in Great Britain compared to 13% in the Netherlands. In itself, this result is consistent with the finding from the previous section that on average, pensioner incomes grew faster in Great Britain than in the Netherlands.

To find associations between attributes of individuals and income mobility, we compare income mobility in various subgroups, categorised into four sets of personal and household attributes: (1) Demographic attributes, (2) Labour market attributes, (3) Income attributes, and (4) Time-period and sample attributes.

**Table 2: Proportion of elderly people in various subgroups, Great Britain and the Netherlands**

| | Cell size | | PERCENTAGE | |
|---|---|---|---|---|
| | **Britain** | **Netherlands** | **Britain** | **Netherlands** |
| **Gender** | | | | |
| Male | 1,520 | 1,245 | 32.5 | 43.6 |
| Female | 3,154 | 1,611 | 67.5 | 56.4 |
| **Age groups** | | | | |
| 60/65 to 69 | 2,144 | 1,081 | 45.9 | 37.9 |
| 70 to 74 | 1,149 | 976 | 24.6 | 34.2 |
| 75 to 79 | 763 | 556 | 16.3 | 19.5 |
| 80 or more | 618 | 243 | 13.2 | 8.5 |
| **Marital status** | | | | |
| Remained a couple | 2,155 | 1,696 | 46.1 | 59.4 |
| Remained widow(er) | 1,730 | 819 | 37.0 | 28.7 |
| Remained divorced/separated | 191 | 84 | 4.1 | 2.9 |
| Remained never married | 373 | 127 | 8.0 | 4.4 |
| Became widow(er) | 225 | 130 | 4.8 | 4.6 |
| **Living arrangements** | | | | |
| Remained living independent | 4,211 | 2,701 | 90.1 | 94.6 |
| Remained living with others | 316 | 69 | 6.8 | 2.4 |
| Living arrangements changed | 147 | 86 | 3.1 | 3.0 |
| **Job status** | | | | |
| Economically active | 233 | 64 | 5.0 | 2.2 |
| Remained in retirement | 4,185 | 2,755 | 89.5 | 96.5 |
| Changed to retirement | 256 | 37 | 5.5 | 1.3 |
| **Partner's employment status** | | | | |
| Earnings from partner | 376 | 90 | 8.0 | 3.2 |
| No earnings from partner | 4,298 | 2,766 | 92.0 | 96.8 |
| **Share of state benefits** | | | | |
| Less than 1.5*avg share | 3,734 | 2,016 | 79.9 | 70.6 |
| More than 1.5*avg share | 940 | 840 | 20.1 | 29.4 |
| **Share of private pensions** | | | | |
| Less than 1.5*avg share | 3,193 | 1,678 | 68.3 | 58.8 |
| More than 1.5*avg share | 1,481 | 1,178 | 31.7 | 41.2 |
| **Share of investment income** | | | | |
| Less than 1.5*avg share | 3,379 | 2,224 | 72.3 | 77.9 |
| More than 1.5*avg share | 1,295 | 632 | 27.7 | 22.1 |
| **Time-period** | | | | |
| 1991-1994 | 1,192 | 640 | 25.5 | 22.4 |
| 1992-1995 | 1,146 | 726 | 24.5 | 25.4 |
| 1993-1996 | 1,167 | 753 | 25.0 | 26.4 |
| 1994-1997 | 1,169 | 737 | 25.0 | 25.8 |
| **Sample attribute** | | | | |
| Un-balanced panel | 1,058 | 1,191 | 22.6 | 41.7 |
| Balanced panel of 7-years | 3,616 | 1,664 | 77.4 | 58.3 |
| **Total** | **4,674** | **2,856** | **100.0** | **100.0** |

*Author's calculations from the BHPS and SEP*

**Table 3: Cross-national comparison of a relationship between income mobility and various attributes**

| | | *A. Results for Great Britain* | | | | | | *B. Results for the Netherlands* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Fall 15%+** | **Fall 5-15%** | **No sig. change** | **Rise 5-15%** | **Rise 15%+** | | **Fall 15%+** | **Fall 5-15%** | **No sig. change** | **Rise 5-15%** | **Rise 15%+** | |
| **Total** | | **17.1** | **16.3** | **28.6** | **16.6** | **21.4** | | **12.2** | **18.7** | **41.5** | **14.3** | **13.4** | |
| ***Demographic attributes:*** | | | | | | | | | | | | | |
| *Gender* | Male | 16.2 | 16.6 | 31.1 | 16.4 | 19.7 | *chi2(4): 9.2* | 12.1 | 19.5 | 40.2 | 13.9 | 14.3 | *chi2(4): 3.5* |
| | Female | 17.5 | 16.1 | 27.4 | 16.7 | 22.2 | *Pr: 0.057* | 12.2 | 18.0 | 42.5 | 14.7 | 12.7 | *Pr: 0.479* |
| *Age groups* | | | | | | | | | | | | | |
| | 60/65 to 69 | 19.6 | 16.9 | 28.8 | 15.2 | 19.5 | | 13.5 | 18.0 | 39.4 | 15.9 | 13.2 | |
| | 70 to 74 | 14.0 | 16.5 | 31.2 | 18.5 | 19.8 | | 10.1 | 20.0 | 43.2 | 12.5 | 14.1 | |
| | 75 to 79 | 16.2 | 15.3 | 28.3 | 17.2 | 23.2 | *chi2(12): 54.9* | 12.6 | 19.1 | 41.6 | 13.1 | 13.7 | *chi2(12): 18.1* |
| | 80 or more | 17.5 | 15.1 | 23.3 | 17.5 | 29.0 | *Pr: 0.000* | 13.2 | 15.6 | 43.6 | 17.3 | 10.3 | *Pr : 0.111* |
| *Marital status* | | | | | | | | | | | | | |
| | Remained a couple | 16.5 | 18.3 | 30.8 | 16.3 | 18.1 | | 12.4 | 20.3 | 41.0 | 13.3 | 13.0 | |
| | Remained widow(er) | 14.9 | 15.6 | 27.0 | 17.4 | 25.1 | | 11.0 | 16.7 | 43.5 | 15.8 | 13.1 | |
| | Remained divorced/separated | 22.0 | 14.1 | 23.6 | 16.8 | 23.6 | | 8.3 | 20.2 | 51.2 | 17.9 | 2.4 | |
| | Remained never married | 18.8 | 12.3 | 30.8 | 15.0 | 23.1 | *chi2(16): 90.8* | 15.8 | 15.0 | 41.7 | 14.2 | 13.4 | *chi2(16): 50.6* |
| | Became widow(er) | 32.4 | 10.7 | 20.4 | 16.4 | 20.0 | *Pr: 0.000* | 14.6 | 12.3 | 29.2 | 16.2 | 27.7 | *Pr: 0.000* |
| *Living arrangements* | | | | | | | | | | | | | |
| | Remained living independent | 16.4 | 15.8 | 29.6 | 16.7 | 21.5 | | 11.9 | 18.5 | 42.6 | 14.4 | 12.7 | |
| | Remained living with others | 13.0 | 19.3 | 26.3 | 20.3 | 21.2 | *chi2(8): 116.7* | 14.5 | 29.0 | 34.8 | 14.5 | 7.3 | *chi2(8): 73.3* |
| | Living arrangements changed | 44.2 | 23.8 | 6.1 | 5.4 | 20.4 | *Pr: 0.000* | 18.6 | 16.3 | 12.8 | 12.8 | 39.5 | *Pr: 0.000* |
| ***Labour market attributes:*** | | | | | | | | | | | | | |
| *Job status* | | | | | | | | | | | | | |
| | Economically active | 22.3 | 10.7 | 28.8 | 17.6 | 20.6 | | 20.3 | 17.2 | 21.9 | 12.5 | 28.1 | |
| | Remained in retirement | 15.5 | 16.4 | 29.2 | 17.0 | 21.9 | *chi2(8): 108.2* | 11.8 | 18.6 | 42.2 | 14.3 | 13.1 | *chi2(8): 31.7* |
| | Changed to retirement | 38.3 | 19.5 | 18.8 | 9.8 | 13.7 | *Pr: 0.000* | 24.3 | 24.3 | 21.6 | 21.6 | 8.1 | *Pr: 0.000* |
| *Partner's employment status* | | | | | | | | | | | | | |
| | Earnings from partner | 29.5 | 16.2 | 23.4 | 14.1 | 16.8 | *chi2(4):46.7* | 23.3 | 22.2 | 22.2 | 16.7 | 15.6 | *chi2(4):19.2* |
| | No earnings from partner | 16.0 | 16.3 | 29.1 | 16.9 | 21.8 | *Pr: 0.000* | 11.8 | 18.6 | 42.1 | 14.2 | 13.3 | *Pr: 0.001* |

***Table 3 (continued)***

| | A. Results for Great Britain | | | | | | B. Results for the Netherlands | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Fall 15%+** | **Fall 5-15%** | **No sig. change** | **Rise 5-15%** | **Rise 15%+** | | **Fall 15%+** | **Fall 5-15%** | **No sig. change** | **Rise 5-15%** | **Rise 15%+** | |
| ***Income attributes:*** | | | | | | | | | | | | |
| *Income quintile groups* | | | | | | | | | | | | |
| Bottom one-fifth | 8.0 | 9.9 | 24.9 | 19.3 | 37.9 | | 5.8 | 7.4 | 45.7 | 19.1 | 22.1 | |
| Second one-fifth | 14.7 | 17.0 | 29.8 | 15.6 | 23.0 | | 6.1 | 17.8 | 48.8 | 14.7 | 12.6 | |
| Middle one-fifth | 15.9 | 16.8 | 28.9 | 16.9 | 21.6 | | 10.5 | 16.7 | 44.9 | 15.1 | 12.8 | |
| Fourth one-fifth | 21.2 | 18.1 | 32.6 | 15.3 | 12.8 | *chi2(16):338.6* | 15.5 | 20.8 | 39.3 | 12.9 | 11.5 | *chi2(16):281.7* |
| Top one-fifth | 25.6 | 19.7 | 26.8 | 16.0 | 11.9 | *Pr: 0.000* | 22.8 | 30.7 | 28.8 | 9.8 | 7.9 | *Pr: 0.000* |
| *State benefits* | | | | | | | | | | | | |
| Less than 1.5*avg share | 18.0 | 16.8 | 29.9 | 16.3 | 19.0 | *chi2(4):76.8* | 13.2 | 20.4 | 40.6 | 13.0 | 12.8 | *chi2(4):29.7* |
| More than 1.5*avg share | 13.3 | 14.4 | 23.4 | 17.8 | 31.2 | *Pr: 0.000* | 9.6 | 14.4 | 43.6 | 17.6 | 14.8 | *Pr: 0.000* |
| *Private pension* | | | | | | | | | | | | |
| Less than 1.5*avg share | 18.7 | 16.4 | 25.8 | 15.7 | 23.4 | *chi2(4):68.6* | 10.6 | 16.6 | 44.5 | 15.2 | 13.2 | *chi2(4):29.4* |
| More than 1.5*avg share | 13.6 | 15.9 | 34.7 | 18.7 | 17.1 | *Pr: 0.000* | 14.4 | 21.7 | 37.2 | 13.1 | 13.7 | *Pr: 0.000* |
| *Investment income* | | | | | | | | | | | | |
| Less than 1.5*avg share | 17.4 | 14.6 | 28.7 | 17.5 | 21.8 | *chi2(4):28.2* | 9.0 | 17.5 | 45.9 | 15.0 | 12.7 | *chi2(4):144.3* |
| More than 1.5*avg share | 16.2 | 20.6 | 28.5 | 14.3 | 20.4 | *Pr: 0.000* | 23.3 | 22.9 | 26.0 | 12.0 | 15.8 | *Pr: 0.000* |
| ***Period and sample attributes:*** | | | | | | | | | | | | |
| *Period* 1991-1994 | 16.9 | 14.8 | 24.9 | 20.0 | 23.5 | | 12.7 | 17.2 | 39.7 | 14.4 | 16.1 | |
| 1992-1995 | 19.7 | 19.5 | 27.5 | 14.6 | 18.8 | | 11.2 | 20.1 | 42.6 | 14.1 | 12.1 | |
| 1993-1996 | 17.2 | 14.8 | 30.5 | 16.4 | 21.1 | *chi2(12):49.2* | 14.6 | 16.6 | 41.8 | 13.9 | 13.0 | *chi2(12):17.4* |
| 1994-1997 | 14.5 | 16.2 | 31.6 | 15.5 | 22.2 | *Pr: 0.000* | 10.2 | 20.6 | 41.7 | 14.9 | 12.6 | *Pr: 0.134* |
| *Sample attribute* | | | | | | | | | | | | |
| Un-balanced panel | 19.0 | 17.7 | 26.5 | 17.1 | 19.8 | *chi2(4):8.8* | 11.7 | 17.5 | 40.8 | 16.3 | 13.8 | *chi2(4):7.9* |
| Balanced panel of 7-years | 16.5 | 15.9 | 29.2 | 16.5 | 21.9 | *Pr: 0.134* | 12.5 | 19.5 | 42.0 | 12.9 | 13.1 | *Pr: 0.094* |

### *5.1 Demographic attributes*

The proportion of *females* amongst the older people in Great Britain is larger than in the Netherlands. This is a direct consequence of the differences in the state retirement age for women: 60 in Great Britain, and 65 in the Netherlands. The results in Table 3 reveal no differences between income mobility of men and women.

Subdivided according to *age*, the proportion of people in the oldest age group (aged 80+) is higher in Great Britain than in the Netherlands (see Table 2). The Chi-square statistics – presented in Table 3 – show that the income mobility of the various age groups differs only in Great Britain. The oldest subgroup in Great Britain (aged 80+) observed the highest upward long-range income mobility: almost 29% as opposed to 10% in the Netherlands. This difference may at least partly be attributed to the fact that only in Great Britain people are entitled to additional disability benefits in old age.[25] Some of it may also be a result of a patchily operating social safety net: people may not take up the cash benefits they are entitled to, but they start claiming it when they undergo a means test for social services charges required for their additional health and disability needs.

Subdividing according to *marital status*, we find that the percentage of couples is higher in the Netherlands, whilst Great Britain has more widow(er)s and never-married persons. For both countries, the Chi-square statistic shows that marital status is significantly correlated with income mobility. Notably, as opposed to the overall picture, a greater proportion of those whose partner died observed long-range *upward* mobility in the Netherlands than in Great Britain.

For two groups we find notable differences between both countries: those who remained in widowhood and those who became widowed. We find that in Great Britain those who remained in widowhood are more likely to have observed long-range upward income mobility – consistent with our results for persons aged 80+ – whereas the event of widowhood itself is likely to result in long-range *downward* income mobility. For the Netherlands, the event of widowhood is relatively often associated with long-range *upward*

[25] This phenomenon also highlights a crucial limitation of *equivalised* income used in this paper. The equivalence scale corrects only for household size to facilitate an interpersonal comparison of household resources, and misses out on changes in the incidence of disability. Zaidi and Burchardt (2002) seek to account for additional costs of living associated with disability, and show that equivalised income without adjustment for differences in disability understates the problem of low income amongst the older population in Great Britain.

income mobility, whilst the income mobility results for those who remained widow are not significantly different from those who remained a couple.

The subdivision based on *living arrangements* shows that more British elderly live with others than Dutch elderly (6.8% in Great Britain, 2.4% in the Netherlands), but that a large majority (90% in Great Britain, 95% in the Netherlands) lived independently.[26] In both countries, income mobility differed significantly among individuals with different living arrangements. The most notable difference between the two countries is observed for those who changed their living arrangements. Similar to the results with respect to the event of becoming a widow(er), Dutch elderly are significantly more likely to have observed long-range upward income mobility whereas British elderly are significantly more likely to have observed long-range downward income mobility when living arrangements changed. Obviously, when living arrangements change, it is the income of other household members that will play an important part in determining the change in household income.

### *5.2 Labour market attributes*

The labour market attributes refer to the employment status of the individual and his/her partner. A greater proportion of older people continue to be associated with the labour market in Great Britain (10%) than in the Netherlands (3.5%). This is a well-known phenomenon,[27] which can partly be attributed to generous incentives for (early) retirement in the Netherlands but may also be due to our definition of older people which includes women aged 60 to 64 in Great Britain only.

Income mobility differed significantly across groups defined on the basis of employment status in both countries. Interestingly for Great Britain, the Chi-square statistic for this cross-classification is almost as high as in the cross-classifications of income mobility with living arrangements and marital status. For the Netherlands, employment status attributes are less important. The transition to retirement results in a relatively high extent of long-range downward income mobility in both countries: 38.3% of all British elderly who retired experienced long-range downward income mobility. The Dutch figure of 24.3% is based on a rather small sample (37 persons).

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[26] Note here that by 'others' we mean members of the household other their own partner.

[27] See Kapteyn and De Vos 1999, and Gruber et al. 1999.

Partners are also less likely to be associated with the labour market in the Netherlands than in Great Britain. Still, for both countries the Chi-square statistic suggests that income mobility is affected by the labour market status of the partner. In both countries, older people whose partner was associated with the labour market (during any year of the 4-year period) were more likely to observe long-range downward income mobility. This may largely be due to changes in the labour supply and retirement from the labour market during the period in question.[28] Also, there may be a tendency for couples to retire concurrently, so the bivariate effect of partner's retirement may be confounded by the effect of changes in one's own employment.

### *5.3 Income attributes*

To subdivide the income mobility results according to income, we define income quintile groups within the older population[29] on the basis of the single-year income in the base year of the 4-year period. For both countries, the Chi-square statistics show a significant link between income mobility and income ranking. Differences between Great Britain and the Netherlands in long-range upward income mobility are observed mainly in the two bottom income groups. In other words, individuals who are in the bottom part of the distribution are much more likely to observe rising income in Great Britain than in the Netherlands.

In both countries, the lowest income group is more likely to observe upward income mobility and the top income group is more likely to observe downward income mobility. This is clearly a statistical artefact in using the base (first) year income, rather than a mid-point estimate; however this phenomenon may have been amplified as a result of measurement errors.

The basis of the results subdivided according to the *composition* of income is formed by binary variables distinguishing those individuals, who have at least a 50% greater than average proportion of total household income from a particular income component, from other individuals with less dependence on that income component. In both countries, older people who had a high proportion of income from state benefits are less likely to have observed long-range *downward* income mobility. British elderly with a higher proportion of

[28] Depending upon his/her age, a partner may or may not be included in our sample of older people. However, changes in their income – as well income of other household members – do affect total household income.

[29] Thus, all references to the bottom income group stand for the bottom one-fifth of the older population. Likewise, all references to the top income group stand for the top one-fifth.

state benefits are more likely to have observed long-range upward income mobility compared to their Dutch counterparts. Moreover, in Great Britain those who derive a higher income proportion from private pensions are less likely to have observed income mobility (either downward or upward). The Dutch results present different patterns: people with a higher proportion from private pensions more often experience downward income mobility,[30] which may partly be caused by the fact that not all private pensions are indexed. With respect to investment income (returns from private investments, including property income such as rent from lodgers), the most striking result is observed for the Netherlands: although Dutch elderly are less likely to have a higher proportion from investment income, those who do are significantly more likely to observe long-range downward income mobility. For Great Britain, the differences are not statistically significant.

### *5.4 Time-period and sample attributes*

In Table 3, we also provide income mobility results subdivided on the basis of period and sample attributes. By period attribute, we mean the 4-year time period upon which an observation is based (i.e. 1991-1994, 1992-1995, 1993-1996, or 1994-1997). The sample attribute distinguishes between respondents present in the balanced panel: those individuals for whom we have all the relevant information for seven years (1991-1997), and all others. The results show hardly any difference across different time periods in the two countries. Likewise in both countries, income mobility experienced by those who were present in all seven years did not differ significantly from those who were not present in all seven years. This result suggests that the sample of older people in both countries did not suffer from selective attrition that had an effect on income mobility.

### *5.5 Implications for our multivariate analysis*

Demographic and income attributes can be considered as relatively important predictors of income mobility in old age for both countries. For example, it can be expected that the event of widowhood and changes in living arrangements will be associated with distinctive income mobility experience. Likewise, level and composition of income significantly affect income mobility. Labour market attributes are less important for the Netherlands, but are expected to

[30] Results are significant only when we look at both long-range and short-range downward income mobility together.

contribute to the explanation of income mobility amongst the British elderly. Time-period and balanced panel attributes carry less significance.

## 6. Cross-national perspective on income mobility: multivariate analysis

In the current section, we extend our analysis on the basis of a multivariate analysis which deals with more than two variables *simultaneously*. Notably, the empirical output is based on the same five-outcome income mobility variable as used for the descriptive results. As our econometric tool we use the multinomial logistic regression technique. This is mainly because of the fact that the dependent variable is a *discrete* variable with more than two outcomes. The reference group in the dependent variable is the category 'no income mobility'. Consistent with Section 5, we organise the discussion of the results, as presented in Tables 4 and 5, around four sets of explanatory variables: demographic, labour market, income, and period and sample attributes.

For both countries, keeping all other attributes constant, *demographic* attributes significantly contribute to the variation in income mobility amongst older people. Notably, in both countries the coefficient for *gender* is not significant for any of the outcomes, which is in line with the descriptive results. *Age*, on the other hand, is significantly associated with the chances of experiencing long-range *downward* income mobility. In both countries, the two coefficients suggest that, all other things being equal, age has a U-shaped association with income mobility, and the chance of experiencing downward income mobility is lowest around the age of 72. The coefficients for age are also significant for *upward* income mobility and provides the same U-shaped relationship: for *short-range* upward mobility for the Netherlands with a minimum at age 76 and for long-range upward mobility for Great Britain with a minimum at age 70.

Some of the coefficients that capture the effect of becoming a widow(er) are significant and positive in both countries. The death of the partner is associated with long-range *downward* income mobility in Great Britain as well as in the Netherlands, whereas the same event is also associated with long-range *upward* income mobility in the Netherlands only. Other *marital status* variables also show significant coefficients. However, those who remained widow(er) during the whole period do not have any significant coefficient in both countries. The coefficient for those who changed their *living arrangements* is significant and positive in both countries for both long-range downward and long-range upward income mobility. Again, these results are in line with our descriptive results.

**Table 4: Income mobility associated with demographic, labour market and income attributes, as well as with base year and the panel length**

***Multinomial regression results for Great Britain based on 1991-1997 BHPS***

| | Coeff | Robust Std Err | Z | P> \| z \| | 95% confidence interval | |
|---|---|---|---|---|---|---|
| ***Fall, 15%+*** | | | | | | |
| Female | 0.194 | 0.133 | 1.46 | 0.15 | -0.067 | 0.454 |
| Age | -0.579 | 0.187 | -3.10 | 0.00 | -0.945 | -0.213 |
| Age squared | 0.004 | 0.001 | 3.15 | 0.00 | 0.002 | 0.007 |
| Remained widow(er) | 0.121 | 0.145 | 0.83 | 0.40 | -0.163 | 0.405 |
| Became widow(er) | 0.961 | 0.235 | 4.08 | 0.00 | 0.500 | 1.422 |
| Remained living with others | -0.599 | 0.291 | -2.06 | 0.04 | -1.169 | -0.029 |
| Living arrangements changed | 2.145 | 0.396 | 5.42 | 0.00 | 1.369 | 2.921 |
| Changed: work to retirement | 1.017 | 0.229 | 4.44 | 0.00 | 0.568 | 1.465 |
| Earnings from the partner | 0.529 | 0.233 | 2.27 | 0.02 | 0.072 | 0.985 |
| 2nd income quintile group | 0.845 | 0.195 | 4.33 | 0.00 | 0.462 | 1.228 |
| 3rd income quintile group | 1.344 | 0.207 | 6.50 | 0.00 | 0.939 | 1.749 |
| 4th income quintile group | 2.080 | 0.241 | 8.62 | 0.00 | 1.607 | 2.553 |
| 5th income quintile group | 3.154 | 0.288 | 10.96 | 0.00 | 2.590 | 3.718 |
| Share of state benefits | 0.025 | 0.005 | 5.28 | 0.00 | 0.016 | 0.034 |
| Share of private pensions | -0.020 | 0.004 | -5.00 | 0.00 | -0.029 | -0.012 |
| Share of investment income | 0.013 | 0.007 | 1.93 | 0.05 | 0.000 | 0.026 |
| Base year = 1992 | 0.302 | 0.093 | 3.25 | 0.00 | 0.120 | 0.484 |
| Balanced panel | -0.025 | 0.140 | -0.18 | 0.86 | -0.299 | 0.248 |
| ***Constant*** | ***16.838*** | ***6.719*** | ***2.51*** | ***0.01*** | ***3.669*** | ***30.007*** |
| ***Fall, 5% to 15%*** | | | | | | |
| Female | 0.167 | 0.112 | 1.49 | 0.14 | -0.053 | 0.387 |
| Age | -0.145 | 0.166 | -0.87 | 0.38 | -0.470 | 0.180 |
| Age squared | 0.001 | 0.001 | 0.93 | 0.35 | -0.001 | 0.003 |
| Remained widow(er) | 0.033 | 0.119 | 0.28 | 0.78 | -0.201 | 0.266 |
| Became widow(er) | -0.152 | 0.257 | -0.59 | 0.55 | -0.656 | 0.352 |
| Remained living with others | 0.177 | 0.216 | 0.82 | 0.41 | -0.247 | 0.601 |
| Living arrangements changed | 1.884 | 0.381 | 4.95 | 0.00 | 1.138 | 2.630 |
| Changed: work to retirement | 0.547 | 0.237 | 2.31 | 0.02 | 0.083 | 1.010 |
| Earnings from the partner | 0.162 | 0.209 | 0.78 | 0.44 | -0.248 | 0.572 |
| 2nd income quintile group | 0.558 | 0.173 | 3.23 | 0.00 | 0.220 | 0.897 |
| 3rd income quintile group | 0.796 | 0.182 | 4.38 | 0.00 | 0.440 | 1.152 |
| 4th income quintile group | 1.050 | 0.202 | 5.19 | 0.00 | 0.653 | 1.446 |
| 5th income quintile group | 1.636 | 0.231 | 7.09 | 0.00 | 1.184 | 2.088 |
| Share of state benefits | 0.015 | 0.004 | 4.06 | 0.00 | 0.008 | 0.023 |
| Share of private pensions | -0.004 | 0.003 | -1.31 | 0.19 | -0.011 | 0.002 |
| Share of investment income | 0.007 | 0.005 | 1.39 | 0.17 | -0.003 | 0.017 |
| Base year = 1992 | 0.322 | 0.100 | 3.21 | 0.00 | 0.125 | 0.518 |
| Balanced panel | -0.151 | 0.118 | -1.28 | 0.20 | -0.382 | 0.080 |
| ***Constant*** | ***2.426*** | ***5.945*** | ***0.41*** | ***0.68*** | ***-9.227*** | ***14.079*** |

**Table 4 (*continued*):**

| | Coeff | Robust Std Err | Z | P> \| z \| | 95% confidence interval | |
|---|---|---|---|---|---|---|
| ***Rise, 5% to 15%*** | | | | | | |
| Female | 0.157 | 0.115 | 1.37 | 0.17 | -0.068 | 0.382 |
| Age | 0.048 | 0.154 | 0.31 | 0.76 | -0.254 | 0.349 |
| Age squared | 0.000 | 0.001 | -0.21 | 0.84 | -0.002 | 0.002 |
| Remained widow(er) | 0.031 | 0.118 | 0.26 | 0.79 | -0.200 | 0.262 |
| Became widow(er) | 0.357 | 0.239 | 1.49 | 0.14 | -0.113 | 0.826 |
| Remained living with others | 0.314 | 0.213 | 1.47 | 0.14 | -0.104 | 0.732 |
| Living arrangements changed | 0.494 | 0.457 | 1.08 | 0.28 | -0.402 | 1.391 |
| Changed: work to retirement | -0.038 | 0.267 | -0.14 | 0.89 | -0.562 | 0.486 |
| Earnings from the partner | 0.164 | 0.199 | 0.82 | 0.41 | -0.226 | 0.555 |
| 2nd income quintile group | -0.381 | 0.153 | -2.48 | 0.01 | -0.682 | -0.080 |
| 3rd income quintile group | -0.300 | 0.169 | -1.78 | 0.08 | -0.630 | 0.031 |
| 4th income quintile group | -0.527 | 0.192 | -2.74 | 0.01 | -0.903 | -0.151 |
| 5th income quintile group | -0.338 | 0.235 | -1.44 | 0.15 | -0.798 | 0.122 |
| Share of state benefits | -0.002 | 0.004 | -0.38 | 0.71 | -0.009 | 0.006 |
| Share of private pensions | 0.000 | 0.003 | -0.12 | 0.91 | -0.007 | 0.006 |
| Share of investment income | 0.005 | 0.005 | 1.03 | 0.30 | -0.005 | 0.015 |
| Base year = 1992 | -0.118 | 0.106 | -1.11 | 0.27 | -0.324 | 0.089 |
| Balanced panel | -0.180 | 0.115 | -1.56 | 0.12 | -0.406 | 0.046 |
| ***Constant*** | -2.468 | 5.546 | -0.44 | 0.66 | -13.338 | 8.402 |
| ***Rise, 15%+*** | | | | | | |
| Female | 0.088 | 0.128 | 0.69 | 0.49 | -0.163 | 0.338 |
| Age | -0.361 | 0.160 | -2.25 | 0.02 | -0.675 | -0.047 |
| Age squared | 0.003 | 0.001 | 2.35 | 0.02 | 0.000 | 0.005 |
| Remained widow(er) | -0.003 | 0.125 | -0.02 | 0.98 | -0.249 | 0.243 |
| Became widow(er) | 0.355 | 0.278 | 1.28 | 0.20 | -0.190 | 0.900 |
| Remained living with others | 0.594 | 0.239 | 2.49 | 0.01 | 0.126 | 1.062 |
| Living arrangements changed | 1.735 | 0.378 | 4.59 | 0.00 | 0.995 | 2.476 |
| Changed: work to retirement | 0.129 | 0.258 | 0.50 | 0.62 | -0.376 | 0.634 |
| Earnings from the partner | 0.426 | 0.228 | 1.87 | 0.06 | -0.021 | 0.873 |
| 2nd income quintile group | -0.814 | 0.148 | -5.50 | 0.00 | -1.104 | -0.523 |
| 3rd income quintile group | -1.064 | 0.178 | -5.97 | 0.00 | -1.412 | -0.715 |
| 4th income quintile group | -1.895 | 0.212 | -8.92 | 0.00 | -2.311 | -1.479 |
| 5th income quintile group | -2.052 | 0.260 | -7.89 | 0.00 | -2.562 | -1.542 |
| Share of state benefits | -0.006 | 0.005 | -1.25 | 0.21 | -0.015 | 0.003 |
| Share of private pensions | 0.008 | 0.004 | 2.00 | 0.05 | 0.000 | 0.015 |
| Share of investment income | 0.013 | 0.006 | 2.18 | 0.03 | 0.001 | 0.024 |
| Base year = 1992 | -0.138 | 0.093 | -1.49 | 0.14 | -0.319 | 0.043 |
| Balanced panel | 0.020 | 0.128 | 0.16 | 0.87 | -0.231 | 0.272 |
| ***Constant*** | 13.202 | 5.803 | 2.28 | 0.02 | 1.829 | 24.575 |
| Number of obs = 4,664 | | | | | | |
| Wald chi2(72) = 680.65 | | Prob > chi2 = 0.0000 | | | | |
| Log likelihood = 6904.5768 | | Pseudo R2 = 0.0651 | | | | |

Notes:
(1) The base outcome of the dependent variable is 'change less than 5%'.
(2) Standards errors are adjusted for clustering on the person-id that identifies same individuals across the panel.
*Author's calculations from the BHPS*

**Table 5: Income mobility associated with demographic, labour market and income attributes, as well as with base year and the panel length**

***Multinomial regression results for the Netherlands based on 1991-1997 SEP***

| | Coeff | Robust Std Err | Z | P> \| z \| | 95% confidence interval | |
|---|---|---|---|---|---|---|
| ***Fall, 15%+*** | | | | | | |
| Female | 0.255 | 0.175 | 1.46 | 0.14 | -0.087 | 0.598 |
| Age | -0.823 | 0.393 | -2.09 | 0.04 | -1.594 | -0.052 |
| Age squared | 0.006 | 0.003 | 2.15 | 0.03 | 0.000 | 0.011 |
| Remained widow(er) | -0.083 | 0.191 | -0.44 | 0.66 | -0.458 | 0.291 |
| Became widow(er) | 0.952 | 0.349 | 2.73 | 0.01 | 0.269 | 1.635 |
| Remained living with others | -2.025 | 0.785 | -2.58 | 0.01 | -3.564 | -0.486 |
| Living arrangements changed | 1.569 | 0.549 | 2.86 | 0.00 | 0.492 | 2.646 |
| Changed: work to retirement | 1.277 | 0.693 | 1.84 | 0.07 | -0.082 | 2.636 |
| Earnings from the partner | 0.317 | 0.469 | 0.68 | 0.50 | -0.602 | 1.236 |
| 2nd income quintile group | 0.517 | 0.338 | 1.53 | 0.13 | -0.144 | 1.179 |
| 3rd income quintile group | 1.064 | 0.367 | 2.90 | 0.00 | 0.345 | 1.782 |
| 4th income quintile group | 1.632 | 0.432 | 3.78 | 0.00 | 0.786 | 2.479 |
| 5th income quintile group | 2.154 | 0.533 | 4.04 | 0.00 | 1.108 | 3.199 |
| Share of state benefits | -0.037 | 0.015 | -2.49 | 0.01 | -0.065 | -0.008 |
| Share of private pensions | -0.044 | 0.013 | -3.30 | 0.00 | -0.071 | -0.018 |
| Share of investment income | -0.001 | 0.015 | -0.09 | 0.93 | -0.030 | 0.027 |
| Base year = 1992 | -0.158 | 0.145 | -1.09 | 0.28 | -0.441 | 0.126 |
| Balanced panel | 0.161 | 0.177 | 0.91 | 0.36 | -0.185 | 0.508 |
| ***Constant*** | 30.436 | 14.649 | 2.08 | 0.04 | 1.724 | 59.149 |
| ***Fall, 5% to 15%*** | | | | | | |
| Female | 0.055 | 0.131 | 0.42 | 0.67 | -0.202 | 0.313 |
| Age | 0.414 | 0.324 | 1.28 | 0.20 | -0.221 | 1.050 |
| Age squared | -0.003 | 0.002 | -1.23 | 0.22 | -0.007 | 0.002 |
| Remained widow(er) | -0.138 | 0.145 | -0.95 | 0.34 | -0.422 | 0.147 |
| Became widow(er) | 0.075 | 0.340 | 0.22 | 0.83 | -0.590 | 0.740 |
| Remained living with others | -0.266 | 0.546 | -0.49 | 0.63 | -1.336 | 0.803 |
| Living arrangements changed | 1.026 | 0.484 | 2.12 | 0.03 | 0.078 | 1.975 |
| Changed: work to retirement | 1.079 | 0.694 | 1.56 | 0.12 | -0.281 | 2.439 |
| Earnings from the partner | 0.426 | 0.393 | 1.08 | 0.28 | -0.345 | 1.197 |
| 2nd income quintile group | 0.940 | 0.237 | 3.96 | 0.00 | 0.475 | 1.406 |
| 3rd income quintile group | 1.175 | 0.257 | 4.57 | 0.00 | 0.672 | 1.679 |
| 4th income quintile group | 1.747 | 0.283 | 6.17 | 0.00 | 1.192 | 2.303 |
| 5th income quintile group | 2.748 | 0.364 | 7.54 | 0.00 | 2.034 | 3.462 |
| Share of state benefits | 0.002 | 0.010 | 0.20 | 0.84 | -0.018 | 0.022 |
| Share of private pensions | -0.015 | 0.010 | -1.55 | 0.12 | -0.034 | 0.004 |
| Share of investment income | 0.007 | 0.011 | 0.62 | 0.54 | -0.015 | 0.029 |
| Base year = 1992 | 0.071 | 0.117 | 0.61 | 0.54 | -0.158 | 0.300 |
| Balanced panel | 0.073 | 0.134 | 0.55 | 0.58 | -0.189 | 0.335 |
| ***Constant*** | -17.899 | 12.154 | -1.47 | 0.14 | -41.721 | 5.923 |

**Table 5 (*continued*):**

| | Coeff | Robust Std Err | Z | P> \| z \| | 95% confidence interval | |
|---|---|---|---|---|---|---|
| ***Rise, 5% to 15%*** | | | | | | |
| Female | -0.080 | 0.149 | -0.54 | 0.59 | -0.371 | 0.212 |
| Age | -0.648 | 0.306 | -2.12 | 0.03 | -1.247 | -0.049 |
| Age squared | 0.004 | 0.002 | 2.09 | 0.04 | 0.000 | 0.008 |
| Remained widow(er) | 0.214 | 0.159 | 1.35 | 0.18 | -0.098 | 0.525 |
| Became widow(er) | 0.546 | 0.305 | 1.79 | 0.07 | -0.052 | 1.144 |
| Remained living with others | -0.250 | 0.557 | -0.45 | 0.65 | -1.343 | 0.842 |
| Living arrangements changed | 0.950 | 0.488 | 1.95 | 0.05 | -0.005 | 1.906 |
| Changed: work to retirement | 0.625 | 0.695 | 0.90 | 0.37 | -0.737 | 1.986 |
| Earnings from the partner | 0.453 | 0.422 | 1.07 | 0.28 | -0.375 | 1.280 |
| 2nd income quintile group | -0.312 | 0.197 | -1.58 | 0.11 | -0.699 | 0.075 |
| 3rd income quintile group | -0.241 | 0.230 | -1.05 | 0.30 | -0.691 | 0.210 |
| 4th income quintile group | -0.205 | 0.275 | -0.75 | 0.46 | -0.744 | 0.334 |
| 5th income quintile group | -0.248 | 0.398 | -0.62 | 0.53 | -1.027 | 0.531 |
| Share of state benefits | -0.012 | 0.013 | -0.93 | 0.35 | -0.037 | 0.013 |
| Share of private pensions | -0.014 | 0.012 | -1.11 | 0.27 | -0.038 | 0.010 |
| Share of investment income | -0.007 | 0.015 | -0.46 | 0.64 | -0.035 | 0.022 |
| Base year = 1992 | -0.159 | 0.137 | -1.16 | 0.25 | -0.428 | 0.109 |
| Balanced panel | -0.219 | 0.139 | -1.58 | 0.12 | -0.492 | 0.053 |
| ***Constant*** | 24.764 | 11.475 | 2.16 | 0.03 | 2.274 | 47.253 |
| ***Rise, 15%+*** | | | | | | |
| Female | -0.215 | 0.173 | -1.25 | 0.21 | -0.554 | 0.123 |
| Age | 0.162 | 0.505 | 0.32 | 0.75 | -0.829 | 1.153 |
| Age squared | -0.001 | 0.003 | -0.35 | 0.73 | -0.008 | 0.006 |
| Remained widow(er) | -0.114 | 0.192 | -0.59 | 0.55 | -0.491 | 0.263 |
| Became widow(er) | 1.258 | 0.307 | 4.10 | 0.00 | 0.656 | 1.859 |
| Remained living with others | -1.063 | 0.851 | -1.25 | 0.21 | -2.731 | 0.605 |
| Living arrangements changed | 1.960 | 0.446 | 4.39 | 0.00 | 1.085 | 2.834 |
| Changed: work to retirement | 0.494 | 0.785 | 0.63 | 0.53 | -1.044 | 2.033 |
| Earnings from the partner | 0.256 | 0.497 | 0.51 | 0.61 | -0.718 | 1.229 |
| 2nd income quintile group | -0.797 | 0.227 | -3.50 | 0.00 | -1.242 | -0.351 |
| 3rd income quintile group | -1.182 | 0.297 | -3.98 | 0.00 | -1.764 | -0.600 |
| 4th income quintile group | -1.675 | 0.410 | -4.09 | 0.00 | -2.479 | -0.872 |
| 5th income quintile group | -2.587 | 0.552 | -4.69 | 0.00 | -3.668 | -1.506 |
| Share of state benefits | -0.046 | 0.016 | -2.88 | 0.00 | -0.077 | -0.015 |
| Share of private pensions | -0.017 | 0.014 | -1.21 | 0.23 | -0.045 | 0.011 |
| Share of investment income | 0.015 | 0.016 | 0.93 | 0.35 | -0.016 | 0.046 |
| Base year = 1992 | -0.171 | 0.131 | -1.30 | 0.19 | -0.428 | 0.087 |
| Balanced panel | -0.131 | 0.173 | -0.76 | 0.45 | -0.470 | 0.208 |
| ***Constant*** | -1.822 | 18.524 | -0.10 | 0.92 | -38.129 | 34.485 |
| Number of obs = 2,613 | | | | | | |
| Wald chi2(72) = 406.23 | | Prob > chi2 = 0.0000 | | | | |
| Log likelihood = 3554.4568 | | Pseudo R2 = 0.0735 | | | | |

Notes:
(1) The base outcome of the dependent variable is 'change less than 5%'.
(2) Standards errors are adjusted for clustering on the person-id that identifies same individuals across the panel.

*Author's calculations from the SEP*

In both countries, the event of a change in living arrangements has a significant coefficient for all income mobility outcomes except short-range upward income mobility, and the positive signs show that this event is associated with higher income mobility. In addition, those who remained living with others are less likely to observe long-range downward income mobility in both countries, whilst this group is more likely to observe long-range upward income mobility in Great Britain only.

The estimated coefficients of the *labour market* attributes results show very little similarity between both countries, an expected result, since the elderly in these two countries differ with respect to their working patterns. In Great Britain, those who changed their work status to retirement and those who had earnings from their partner are more likely to observe downward income mobility (both long- and short-range income mobility). For the Netherlands, the change in working status to retirement does not have a significant coefficient for any mobility outcome, and this also holds for the variable indicating that the partner had earnings.

The *income* groups are defined as quintile income groups, and the bottom income group is defined as the reference category. The coefficients for all four income groups ($2^{nd}$, $3^{rd}$, $4^{th}$ and $5^{th}$ income quintile groups) are significant in both countries for three mobility outcomes: long-range downward, short-range downward, and long-range upward mobility. The positive coefficients for the first two mobility outcomes imply that those who belong to any of the four income groups are more likely to observe long-range or short-range *downward* income mobility. In contrast, the coefficients for long-range upward mobility are *negative*, which implies that persons in these income groups are *less* likely to observe *upward* income mobility than persons in the bottom income group.

The significance of the income composition attributes is best observed when we use the income shares of these components as continuous variables.[31] For the Netherlands, the coefficients for the share of state benefits suggest that a higher proportion of state benefits in the total income decreases the chances of both long-range downward and long-range upward income mobility. For Great Britain, a contrasting result is found: a higher proportion of state benefits increases chances of long-range downward income mobility.

[31] The *discrete* two-outcome variable that identifies higher-than-average shares did not provide additional insights in the regression analysis. Their usefulness was also questionable since they were derived by making use of an arbitrary cut-off point.

In both countries, the share of private pensions has a negative and significant coefficient for long-range downward income mobility. This may be attributed to the fact that in both countries the principal source of private pension is the occupational pension, which is usually inflation-indexed. For Great Britain, we also find that a high share of private pensions increases the chances of long-range upward income mobility.

The share of investment income has an *insignificant* coefficient for all mobility outcomes for the Netherlands. For Great Britain, this variable is significant (positive) only for long-range upward and long-range downward income mobility, implying that a greater reliance on investment income is likely to result in greater volatility in income.[32]

The base-year dummy variable is included so as to capture whether the first 4-year period (1991 to 1994) was different from the other three 4-year periods (1992 to 1995, 1993 to 1996, and 1994 to 1997). The coefficient is significant in only one instance: British elderly are more likely to have observed long-range downward income mobility in the first period (1991 to 1994). The coefficients of the last variable, which differentiates between those who were present during the whole seven-year time period and those who were not, are insignificant for both countries, for all income mobility outcomes.

To summarise the results, focusing on long-range income mobility only, we present in Box 2 the sign and significance of all explanatory variables. First, we summarise *common* patterns in the two countries, starting with long-range *downward* income mobility. In both countries age has a U-shaped association with income mobility, with chances of experiencing downward income mobility at its lowest around the age of 72. Furthermore, in both countries, a high share of private pensions reduces chances of long-range downward income mobility. Those who live with others (other than their own partner) are also *less* likely to experience downward income mobility. In contrast, in both countries, all those who become a widow(er) are *more* likely to experience long-range downward income mobility. Likewise, persons in the second to fifth income quintile group are *more* likely to experience downward income

[32] Income from savings and investment in the BHPS is collected as a *banded* variable, and the annual value is estimated as approximately the mid-point of the bandwidth. This creates some doubt as to whether the contribution of investment income to the longitudinal variation of total income of older people is genuine, or merely a result of the way this variable is recorded. One additional problem is that the bands used in recording this variable are not the same across waves. This change, however, affects our income mobility results only marginally.

mobility than the bottom income group. As regards long-range *upward* income mobility, in both countries, a change in living arrangements of older people is associated with a higher likelihood of this type of income mobility. Moreover, in both countries, persons in the bottom income quintile are more likely to observe upward mobility than persons in the higher quintiles.

**Box 2: Significance and signs of coefficients included in the final specification**

| Attributes | Long-range downward income mobility | | Long-range upward income mobility | |
|---|---|---|---|---|
| | GB | NL | GB | NL |
| Female | x | x | x | x |
| Age | -ve | -ve | -ve | x |
| Age squared | +ve | +ve | +ve | x |
| Remained widow(er) | x | x | x | x |
| Became widow(er) | +ve | +ve | x | +ve |
| Remained living with others | -ve | -ve | +ve | x |
| Living arrangements changed | +ve | +ve | +ve | +ve |
| Changed: work to retirement | +ve | x | x | x |
| Earnings from the partner | +ve | x | x | x |
| 2nd income quintile group | +ve | x | -ve | -ve |
| 3rd income quintile group | +ve | +ve | -ve | -ve |
| 4th income quintile group | +ve | +ve | -ve | -ve |
| 5th income quintile group | +ve | +ve | -ve | -ve |
| Share of state benefits | +ve | -ve | x | -ve |
| Share of private pensions | -ve | -ve | x | x |
| Share of investment income | +ve | x | +ve | x |
| Base year = 1992 | +ve | x | x | x |
| Balanced panel | x | x | x | x |

x = non-significant coefficient
+ve = significant with positive sign
-ve = significant with negative sign

Focusing on the *differences* found between the two countries, we note that a high share of state benefits increases the likelihood of long-range downward income mobility in Great Britain, whereas the same attribute reduces the chances of long-range downward income mobility in the Netherlands. For the Netherlands, the event of becoming a widow(er) is associated with rising chances of both long-range downward and upward mobility, whereas in Great Britain this event is associated with long-range downward income mobility only.

Box 2 indicates the significance of individual attributes, but it does not report the size of the coefficients. For the purpose of examining the relative importance of the various attributes in their effect on income mobility, we have used the regression results to calculate predicted probabilities of the five mobility outcomes for various subgroups of older people in the two countries. These results are presented in Table 6.[33]

*Long-range downward income mobility*: For most subgroups the probability of observing this type of income mobility is higher in Great Britain than in the Netherlands, which is in line with the difference observed for the older population as a whole. A notable exception is found for couples in which the partner is economically active (see row 13 and 14 in Table 6): for this subgroup, income mobility in the Netherlands is almost as high as in Great Britain. A similar result is observed for those who are never-married or divorced and live independently (row 15 and 16), for single elderly persons who live with others (row 17), and for widowers who live independently (row 20).

*Short-range downward income mobility*: In most cases, the difference between Great Britain and the Netherlands is small. Notable exceptions are observed for those whose partners are active in the labour market (Dutch elderly experiencing *more* income mobility than British elderly; see row 15 and 16), and for those who are never married, divorced, or widow and changed their living arrangements (Dutch elderly experiencing *less* mobility than British elderly; row 11 and 12).

[33] Results included in Table 6 are derived for combinations of attributes for which we have at least 15 observations in the sample for a country. The probabilities reported in this table are *average* probabilities.

**Table 6: Predicted probabilities of the incidence of income mobility associated with various combination of attributes, Great Britain and the Netherlands**

| | Attributes of older people | | | | | | | GB | NL | GB | NL | GB | NL | GB | NL | GB | NL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Row no. | Age | Gender | Marital status | Living arrange. | Remained Retired | Earnings from partn | Income Group | Fall 15%+ | Fall 15%+ | Fall 5-15% | Fall 5-15% | No sig. change | No sig. change | Rise 5-15% | Rise 5-15% | Rise 15%+ | Rise 15%+ |
| 1 | 65-69 | Female | Couple | Indep. | Yes | No | 1st | 6.9 | 3.6 | 10.2 | 6.6 | 27.8 | 49.8 | 19.1 | 21.1 | 36.1 | 18.7 |
| 2 | *70-74* | .. | .. | .. | .. | .. | .. | 6.2 | 3.3 | 10.2 | 8.4 | 27.9 | 53.2 | 20.4 | 16.8 | 35.3 | 18.2 |
| 3 | *75+* | .. | .. | .. | .. | .. | .. | 5.8 | 3.8 | 9.6 | 8.6 | 23.7 | 53.4 | 20.4 | 16.0 | 32.0 | 18.2 |
| 4 | .. | Male | .. | .. | .. | .. | .. | 5.3 | 2.9 | 9.2 | 7.7 | 27.3 | 50.9 | 20.5 | 17.1 | 37.7 | 21.5 |
| 5 | *65+* | Female | .. | .. | .. | .. | .. | 6.4 | 2.6 | 10.1 | 7.0 | 27.2 | 49.2 | 19.8 | 18.3 | 36.4 | 22.9 |
| 6 | .. | Male | .. | .. | .. | .. | .. | 5.5 | 3.6 | 9.4 | 8.0 | 29.1 | 52.3 | 19.5 | 17.8 | 36.5 | 18.4 |
| 7 | *80+* | Female | Widow(er) | .. | .. | .. | .. | 8.9 | 7.4 | 10.2 | 6.8 | 21.3 | 49.3 | 19.3 | 25.6 | 40.3 | 10.9 |
| 8 | .. | .. | .. | .. | .. | .. | 2nd+ | 19.8 | 10.8 | 17.7 | 13.0 | 24.9 | 48.3 | 16.3 | 19.8 | 21.3 | 8.1 |
| 9 | *65+* | .. | Widowed | .. | .. | .. | All | 32.5 | 17.4 | 10.5 | 15.2 | 20.2 | 31.1 | 16.8 | 14.5 | 20.1 | 21.8 |
| 10 | .. | Male | .. | .. | .. | .. | .. | 24.6 | 12.3 | 10.5 | 12.6 | 25.0 | 30.0 | 18.4 | 15.3 | 21.5 | 29.8 |
| 11 | .. | Female | Non-couple | Changed | .. | .. | .. | 29.3 | 19.0 | 23.1 | 15.5 | 7.3 | 14.7 | 7.4 | 13.3 | 32.9 | 37.4 |
| 12 | .. | Male | .. | .. | .. | .. | .. | 39.3 | 19.3 | 26.9 | 17.2 | 7.4 | 12.9 | 6.3 | 11.6 | 20.2 | 39.1 |
| 13 | .. | Female | Couple | Indep. | .. | Yes | .. | 24.8 | 30.3 | 16.7 | 25.2 | 26.7 | 21.4 | 15.7 | 12.3 | 16.1 | 10.8 |
| 14 | .. | Male | .. | .. | .. | .. | .. | 22.0 | 19.7 | 16.7 | 22.2 | 29.2 | 27.6 | 15.8 | 17.3 | 16.2 | 13.1 |
| 15 | .. | Female | N. marr./div | .. | .. | No | .. | 12.4 | 10.4 | 15.0 | 17.2 | 29.7 | 46.1 | 17.8 | 16.6 | 25.1 | 9.8 |
| 16 | .. | Male | .. | .. | .. | .. | .. | 11.2 | 10.1 | 14.8 | 16.7 | 33.8 | 44.8 | 17.2 | 17.2 | 22.9 | 11.1 |
| 17 | .. | Female | Non-couple | w. others | .. | .. | .. | 16.9 | 19.1 | 21.0 | 25.5 | 21.9 | 23.3 | 18.4 | 12.9 | 21.9 | 19.1 |
| 18 | .. | .. | Widow(er) | Indep. | .. | .. | 1st | 7.6 | 4.0 | 10.0 | 7.5 | 24.7 | 52.4 | 20.1 | 21.1 | 36.1 | 14.9 |
| 19 | .. | .. | .. | .. | .. | .. | All | 12.9 | 8.7 | 14.9 | 15.1 | 28.0 | 48.7 | 18.2 | 17.1 | 26.1 | 10.4 |
| 20 | .. | Male | .. | .. | .. | .. | .. | 13.0 | 12.5 | 14.3 | 20.1 | 29.6 | 41.9 | 17.1 | 14.8 | 26.0 | 10.7 |

*No income mobility*: Consistent with the overall results, for most combinations of attributes, the probability of experiencing no income mobility is significantly higher in the Netherlands than in Great Britain. Notable exceptions are for those whose partner had earnings (row 15 and 16), and for single elderly living with others (row 17).

*Short-range upward income mobility*: Consistent with the overall results, the income mobility differentials between the two countries are small in almost all subgroups.

*Long-range upward income mobility*: Again, most results are consistent with the overall results: British elderly had a higher likelihood of experiencing long-range upward income mobility than Dutch elderly. A notable exception is found for persons becoming widow(er) where the Dutch are as likely to experience long-range upward mobility as the British. Moreover, for single male persons who changed their living arrangements (row 12), the probability of experiencing long-range upward income mobility is significantly higher in the Netherlands than in Great Britain.

## 7. Conclusions

There are convincing arguments to investigate income mobility of the elderly in the framework of a cross-national comparison. In this paper, we provide a first attempt, making use of panel data from Great Britain and the Netherlands for the period 1991 to 1997. Results are generated using a five-category income mobility variable indicating absolute changes in equivalised annual household income smoothed over two years. The elderly are defined as all those who reached the statutory retirement age.

Our results suggest that the elderly experience considerable income mobility in both countries but that income mobility among the elderly in Great Britain – in particular, long range downward and especially long range upward income mobility - is clearly higher than in the Netherlands. Several attributes and events appear to be correlated with income mobility, and a multinomial logistic regression reveals that most of these variables also affect income mobility in a multivariate context, i.e. when other relevant variables are also taken into account. This includes demographic attributes (age, marital status), events such as becoming a widow(er) and changing living arrangements, employment status variables, and income level and composition.

A notable difference between the two countries concerns the consequences of becoming a widow(er). In the Netherlands this event is associated with both long-range upward and

downward income mobility, whilst in Great Britain becoming a widow(er) is only linked to downward income mobility. Another difference concerns the relationship between income mobility and income composition: in Great Britain, a high share of state benefits is associated with downward income mobility, whilst in the Netherlands it appears to be associated with a stable income. On the other hand, private pensions in Great Britain are associated with less downward and more upward income mobility, whilst in the Netherlands, they are mainly associated with lower levels of downward income mobility. It is likely that all these differences are linked to differences in various aspects of the pension arrangements, such as the way basic pension entitlements are accumulated and their indexation, as well as the generosity of occupational pensions in provisions for survivors.

Notably, a large part of the variation in income mobility remains unexplained by the variables included in our multinomial regression model. Measurement errors might be one of the underlying causes of this result. However, there is also scope for extending the search for other explanatory factors for income mobility among the elderly.

As mentioned above, this paper can be seen as a first shot at analysing the phenomenon of income mobility *during* later life. Improvements in data quality and comparability as well as in methodology are necessary before clear scientific and policy conclusions may be drawn. Next to a more extended search for explanatory variables underlying income mobility and for indicators (of the effects) of measurement errors, the analysis might also be extended in several other directions. In particular, *relative* income mobility could be of interest, both concerned with the relative income position within the population of elderly as with the relative income position within the total population. Moreover, *long term* mobility results could be contrasted with year-on-year changes. Obviously, *sensitivity analysis* would also be useful, for example with respect to the income definition, the smoothing procedure, the equivalence scale in use, the definition of the income mobility variable and the definition of old age.

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