An analysis of income mobility of the Finnish elderly after retirement

Gustavo De Santis[a], Irene Ferro[a], Pekka Martikainen[b]

[a]Department of Statistics "G. Parenti", University of Florence, Viale Morgagni 59, 50134 Florence, Italy

[b] Population Research Unit, Department of Sociology, University of Helsinki, PO Box 18, Helsinki FIN-00014, Finland

Preliminary version

Please do not quote

Introduction: retirement, gender and living arrangement in Europe

The relationship between low income, retirement and household characteristics is of interest for several reasons. Firstly, because of the increasing number of older people in all western societies, mainly due to increases in life expectancy, financial security after retirement is of growing concern. Secondly, because the transition to retirement may be associated with a reduction in one's standard of living: if this reduction is substantial, it may precipitate that person and his/her family into poverty. Finally, changes of this kind may not be evenly distributed among the population: who suffers most?

Previous studies on the economic well-being of older people in several countries show that the equivalent income of the elderly is about 80% of the average. Heterogeneity is high, however. For instance, women fare worse than men, on average, but this also depends on the living arrangement: retired men who live alone generally have a higher equivalent income than those who live in couple; on the contrary, among women in old age, single women typically fare worse than the married (Disney, Whitehouse, 2002). Besides, the low-income risk for old women depends strictly on their educational level, and on the type of their previous job, if any: the mere fact of having worked in one's adult years, while useful for economic security in old age, does not fully protect from poverty after retirement (Bardasi, Jenkins, 2002).

On the other hand, during the last decades, living arrangements of older people in Europe have changed markedly: living with relatives has become far less common, while living alone is now frequent, especially for a woman, and institutional living at very old age is becoming a common experience, especially in northern Europe.

Research hypothesis

Our analysis focuses on income mobility in the years immediately before and after retirement, for the older Finnish population, both in general and for a few selected sub-groups of it.

It is worth remarking that, by European standards, Finland devotes a comparatively low proportion of its social budget to its elderly, who, nonetheless, fare comparatively well in economic terms (De Santis *et al.*, 2005). As for marital status, the distribution has been changing rapidly in recent times, and the proportion divorced has risen markedly, both in general and among those aged 65 and over (Martikainen *et al.,* 2005).

What we want to study is if and how equivalent income changes in the years immediately following retirement, distinguishing between *marginal* changes (i.e. statistically significant, but of limited amount - below a predefined threshold), *transitory* changes (change is substantial, but it does not persist over time) and *permanent* changes, i.e. both substantial and persistent.

Following the approach proposed by Gardiner and Hills (1999), we group income trajectories into four categories (*Flat, Rising, Falling, Zigzag*), which we associate to a number of observable characteristics.

Changes in household composition are an important explanatory component of income mobility in old age: everything else equal, a net consumer (i.e. one who presumably consumes more than he/she earns) who leaves the household pushes equivalent income upwards; conversely, a net earner who leaves the household makes those who remain comparatively poorer. In old age, at about the time of retirement, outwards movements prevail (e.g. an adult child who moves out of the paternal home; death of a household member; couple breakdown, etc.), although, in some cases, the opposite also takes place: adult children coming back to live with their aged parents; a new couple formation, etc. (Rigg, Sefton, 2004). We focus in particular on the analysis of the association between retirement and these household events: namely, we expect that those with little or no

change in their living arrangements mainly experience a 'linear' income trajectory (flat, rising, or falling). In contrast, older individuals with changes in their household composition should be more likely to follow 'Zigzag' income trajectories.

Population and retirement system in Finland

Let us first have a general look at the Finnish population (tab. 1).

Table 1: Population and demographic indicators in Finland and the EU-27 (most recent data available)

	Population (millions)[a]	Old-age dependency (%)[b]	TFR	Life expectancy	
				Males	Females
	2008	**2007**	**2006**	**2006**	**2006**
Finland	5.30	24.8	1.84	75.9	83.1
		European Union - 27 countries			
Average	18.41	25.2	1.51[c]	74.2[c]	80.9[c]
Max	82.20	30.2	2.00	78.8	84.4
Min	0.41	16.2	1.24	65.3	76.2

a) as of Jan, 1st. b) Persons aged 65+ / persons aged 15-64 c) unweighted averages

Source: Eurostat

Finland has a population of about 5.3 million inhabitants - considerably less than the EU-27 average (18.4 million). The old-age dependency ratio (i.e. the ratio Pop_{65+}/Pop_{15-64}) is slightly less than 25%, which makes Finland is a relatively young population in comparison with the rest of Europe where this ratio is 25.2%, on average. However, the ageing process is at work in Finland, too: the total fertility rate is now at about 1.8 children per woman, and life expectancy at birth has reached 75.9 and 83.1 years, for men and women, respectively. The share of children aged 0-14 has declined (from 35% in 1900 to 17% in 2006), and the proportion of people aged 65 and over has soared (from 5.4 to 16.5%). In the last few years, households have increased in number (+2% between 2000 and 2006), but decreased in size. Households with little children have fallen by 3.8% between 2000 and 2006, and more and more people are getting old in ever smaller households (Forssén et al., 2001; Statistics Finland, 2007).

The earnings-related pension system of Finland was changed in 2005. However, we consider people retired before 2005, when the old pension system still was in force, and this permits us to ignore the normative changes that have since taken place.

Until 2005, the Finnish pension system consisted of a) a national pension scheme, b) statutory private and public sector earnings-related pensions, and c) voluntary pensions. If the private or public sector earnings-related pension did not provide sufficient income protection, the state pension supplemented it. Both employers and employees can supplement the earnings-related benefits with additional, voluntary pension schemes. Finland's National Pension scheme and the statutory earnings-related schemes together provide the following benefits: a flat, means-tested old-age pension plus an earnings-related pension, a disability pension, survivor benefits for spouses and children, unemployment pensions for individuals, aged 60-64, and a part-time earnings-related pension. The normal retirement age is 65, but individuals can choose to retire earlier (although not before age 60 if non-disabled or 58 if disabled) in exchange for reduced benefits (Herbertsson et al., 2000).

Data: combining Finnish administrative records

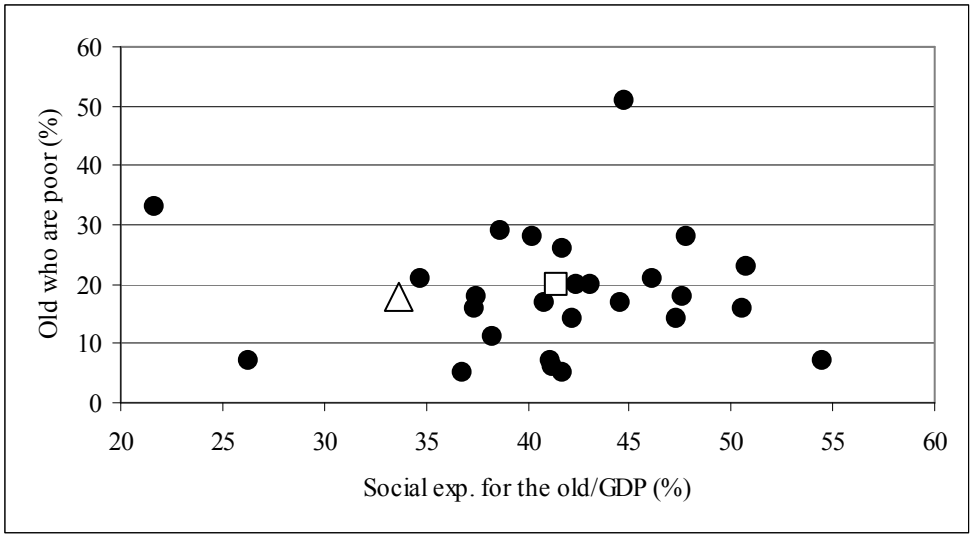
Several studies have analysed the economic conditions of the aged, or their households, both at the national and the international level (e.g. Disney, Whitehouse 2002; Smeeding, 2003; Behrendt Ch., 2004; De Santis, Seghieri, Tanturri 2005; Reil-Held, 2006; Börsch-Supan 2007). However, these studies are frequently limited by the non-availability of adequate data, which should ideally be at the individual (household) level, detailed and longitudinal.

The data base that we analyse comes close to this ideal. We use a data set that derives from a combination of several administrative archives of the Finnish population, managed by Statistics Finland and other register authorities, which covers the whole Finnish population. Our data is at the individual level and refers to the following years: 1970, 1975, 1980, 1985, plus annual data from 1987 to 2003. The dataset contains information on demographic characteristics, household structure, education, housing tenure, economic situation, income, pensions, taxes paid and (public) transfers received by individuals and households, occupation-based social class, mortality.

This is a very rich archive, which compares favorably with the other European sources on this topic that we are aware of: the Luxemburg Income Study (LIS), the Survey on Income and Living Condition in the EU (SILC), the Survey of Health, Ageing and Retirement in Europe (SHARE), etc. These surveys offer an international, comparative perspective that we miss. However, they also suffer from several limitations: time spans are generally short; sample cells typically contain only a few cases; when panels are formed, attrition is high; representativeness is questionable.

Besides, the Finnish case is very interesting in itself. As mentioned, Finnish public expense for the old is lower than average in Europe, but this does not seem to have particularly harmed the old (Figure 1), although things may have gotten worse in more recent years.

Figure 1 - Social expenditure for the old (% of GDP) and share of old (65+) who are poor (EU-27 in 2005; Triangle=Finland; Square: Average EU-27)



Source: Own elaborations on Eurostat (http://epp.eurostat.ec.europa.eu/)

Moreover, the marital status of the Finnish elderly is changing rapidly: using the same database that we exploit, Martikainen et al. (2005) note, for instance, the rapidly rising proportion of the divorced among both men and women aged 65 and over.

For this application, we confine ourselves to the study of people who retired in the years 1990-2000: we "follow" them over a period spanning three years before and three years after retirement, and examine the changes in their economic situation, as well as in their household arrangement.

Method

We subdivide our sample into 5 cohorts, according to the year of retirement: Cohort 1 “1990-1991”, Cohort 2 “1992-1993”, Cohort 3 “1994-1995”, Cohort 4 “1996-1997”, Cohort 5 “1998-2000”.

We first calculate the equivalent income of each person before and after retirement: we divide the pooled income of all household members by the corresponding equivalence factor. The equivalence scale that we use is the "OECD-modified scale" (Haagenars et al., 1994), which assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.

One of the most intuitive ways of studying income mobility is to construct transition matrices. These matrices describe the probability of moving (or, more precisely, the proportion of individuals who moved) across income classes during the period under examination. An income transition matrix can be obtained from cross-tabulations of income group membership at the beginning and at the end. In other words, it links income origin with income destination (Zaidi *et a.*, 2001).

In the second part of our study, we follow a different path, along the lines suggested by Gardiner and Hills (1999). We analyse income trajectories in the seven years around retirement.

In the third part, we apply a multinomial logistic model to measure the relation between the income trajectory and a few explanatory variable, among which sex, marital status, education and cohort.

In the same vein, we also apply an ordinal logistic model in order to measure the effect of a few explanatory variables on income 3 years after retirement: independent variables are the same as before, plus income level at the start (i.e. 3 years before retirement).

A glance at our data

The following tables contain some descriptive characteristics of the examined population. Birth cohort are not evenly represented in our data: the cohort 1926-1929 is the smallest. On the other hand, the distribution of people into retirement cohorts is more balanced: there are about 7-8 thousand people, 45% men and 55% women.

Table 2. Descriptive statistics. Joint distribution of birth and retirement cohorts

	birth cohort				
retirement cohort	1926-1929	1930-1933	1934-1937	1938-1942	Total
1990-1991	34.6	36.4	21.0	8.1	100.0
1992-1993	26.4	39.9	24.1	9.6	100.0
1994-1995	10.0	34.7	36.7	18.6	100.0
1996-1997	0.5	23.8	52.2	23.4	100.0
1998-2000	0.1	7.0	36.2	56.6	100.0
Total	13.6	27.6	34.0	24.9	100.0

N= 37,157

Table 3. Descriptive statistics. Joint distribution of sex and retirement cohorts

Retirement cohort	Male	Female	Total
1990-1991	7.3	9.9	17.1
1992-1993	9.6	11.2	20.8
1994-1995	9.3	11.6	20.9
1996-1997	7.6	9.7	17.3
1998-2000	10.8	13.1	23.9
Total	44.6	55.4	100.0

N= 37,157

Table 4 provides some basic statistics of the household equivalent income in the year of retirement, for each cohort: the mean oscillates in the range 17 to 22 thousand euros for each cohort. If we considered an approximate measure of relative poverty as the 60% of the median equivalent income, we find the threshold in the 5th column of the table. On this basis we notice that for each cohort about a 20% of retired people is "poor" (not shown in the table).

Table 4. Descriptive statistics on household equivalent income in the year of retirement: average, quartiles.

	Household equivalent income in the year of retirement				
retirement cohort	Mean	p25	p50	p75	Poverty threshold
1990-1991	17286	11933	16050	21000	9630
1992-1993	18007	12200	16400	21867	9840
1994-1995	18748	12541	16900	22800	10140
1996-1997	19882	12867	17500	24333	10500
1998-2000	22342	14400	19333	26533	11600
Total	19398	12800	17280	23333	9630

N= 37,157

Relative equivalent income positions tend to persist in old age: the best off before retirement remain relatively rich also after retirement. In order to show this, we consider equivalent income quintiles within each cohort in each of the three "occasions" that we are focusing on: 3 years before retirement, in the year of retirement and 3 years after retirement.

First of all we look at income mobility trough a transition matrix (tables 5 to 9). This is a matrix showing what percentage of each twentieth of the population (i.e. each quintile), in year *t*-3 end up in which income quintile at the end of the period (*t*+3; *t*= retirement year). Although the period is short, income changes are not negligible: only about 50% of individuals for each cohort remain in the same income class. The highest income stability can be observed for those who are in the first (poorest) and in the last (richest) quintile before retirement. Not surprisingly, changes of quintile mostly regard consecutive classes: upward movements prevail for those who start from the third or the fourth percentile (i.e. median or better); downward movements characterize the second quintile. Transition from the poorest (1^{th} quintile) to richest class (4^{th}-5^{th} quintiles) and vice versa are rare, and do not depend on the transition to retirement, or not solely.

Table 5 – Transition matrix (retirement cohort 1990-1991)

Cohort 1990-1991	3 years after retirement					
3 years before retirement	1°	2°	3°	4°	5°	Total
1° (poorest)	57.98	23.7	11.1	5.32	1.91	100
2°	27.73	35.52	22.8	10.61	3.34	100
3°	7.91	27.52	34.79	22.92	6.86	100
4°	3.43	10.18	24.57	39.55	22.26	100
5° (richest)	2.4	2.92	8.12	21.33	65.23	100
Total	20	20	20.26	19.87	19.87	100

Table 6 – Transition matrix (retirement cohort 1992-1993)

Cohort 1992-1993	3 years after retirement					
3 years before retirement	1°	2°	3°	4°	5°	Total
1° (poorest)	60.35	24.02	10.1	3.62	1.91	100
2°	24.56	37.34	24.12	11.88	2.09	100
3°	9.19	26.75	34.17	23.67	6.21	100
4°	4.06	9.17	24.85	39.88	22.04	100
5° (richest)	1.86	2.62	7.14	20.47	67.91	100
Total	20.02	20.01	20.08	19.9	20	100

Table 7 – Transition matrix (retirement cohort 1994-1995)

Cohort 1994-1995	3 years after retirement					
3 years before retirement	1°	2°	3°	4°	5°	Total
1° (poorest)	59.56	23.8	9.53	4.59	2.52	100
2°	27.75	37.37	22.51	8.84	3.53	100
3°	8.62	25.71	34.74	23.29	7.64	100
4°	3.1	10.2	26.81	39.91	19.98	100
5° (richest)	1.04	2.39	6.34	23.64	66.6	100
Total	20.09	19.94	19.99	19.99	20	100

Table 8 – Transition matrix (retirement cohort 1996-1997)

Cohort 1996-1997	3 years after retirement					
3 years before retirement	1°	2°	3°	4°	5°	Total
1° (poorest)	61.73	21.69	8.76	4.73	3.09	100
2°	24.42	37.41	24.23	10.22	3.72	100
3°	9.49	26.31	34.22	22.52	7.46	100
4°	2.71	12.63	26.2	40.97	17.49	100
5° (richest)	1.52	2.41	6.72	21.31	68.04	100
Total	20.01	20.11	20.03	19.94	19.92	100

Table 9 – Transition matrix (retirement cohort 1998-2000)

Cohort 1998-2000	3 years after retirement					
3 years before retirement	1°	2°	3°	4°	5°	Total
1° (poorest)	63.88	21.78	8.13	3.93	2.29	100
2°	22.98	37.28	25.39	10.68	3.67	100
3°	9.43	27.55	32.1	23.89	7.04	100
4°	3.21	10.99	26.96	40.46	18.39	100
5° (richest)	0.52	2.44	7.18	21.53	68.34	100
Total	20.02	20.03	19.96	20.09	19.9	100

Income trajectories are a possible way of looking at our data. As mentioned, each individual is observed in three "occasions" (t-3; t; t+3), forming an income trajectory (across quintiles) which we classify in one of four types: decreasing, steady, growing and, finally, swinging income. We find that those whose income decreases after retirement are mainly women, divorced, and people with low education. Those whose income does not change after retirement are mainly women, single, and those with a high educational level; finally, those whose income increases after retirement tend to be men and married.

Also of interest is the joint analysis of income and household trajectory. Changes in household composition involve about 30% of the people in our group. Cross-sectionally, within each cohort, more than 50% of people have a partner (with or without children) and fewer than 20% are singles (with or without children), before and after retirement.

The most frequent family change is the shift from *couple with children* to *couple without children*. This is the obvious consequence of the type of population that we are examining, namely, old parents with adult children that become independent.

If we look at the income trajectories for each family change, we notice that decreasing trajectories mostly involve people who are singles before and after retirement; steady income is frequent for childless couples and for singles; rising income seems to be an exclusive characteristic of people who live in couples with children throughout the observation period. Older individuals who experienced changes in household composition are more likely to follow 'Zigzag' equivalent income trajectories, basically because of the changes in the equivalence factor that needs to be applied to their households.

A multinomial model

Let us now try to consider all of these dimensions together. To this end, we apply a multinomial model, which is particularly suited for the analyses of categorical dependent variables with more than two response categories. This fits our needs, because our dependent variable, income trajectory, is a categorical variable with 4 categories: steady, decreasing, rising, zigzag (Table 10).

As demographic control variables, we introduce into the model the sex, the birth cohort (1926-1929; 1930-1933; 1934-1937; 1938-1942), the retirement cohort (1990–1991; 1992–1993; 1994–1995; 1996–1997; 1998–2000), the educational level. Using the information referring to the highest education level ever reached, education attainments are clustered in three groups, namely low education (no schooling and primary school); medium education (high school qualification); high education (degree qualification and higher education).

Marital status at the beginning of the period under study is also introduced. We redefine marital status using three levels: married, no longer married (divorced and widowed), single (never married).

Finally, we include in the model the equivalent income quintile 3 years before retirement, because we want to check just how much income trajectories depend on the starting point.

This variable has its drawbacks, because, by definition, those who start at one extreme are limited in their trajectory: for instance, the richest at the start (i.e belonging to the 5th quintile) cannot have a rising trajectory. But income mobility and persistence into poverty (or any other income bracket, for that matter) are of great interest, particularly around the time of retirement, therefore we eventually decided to keep this variable.

Results

Marital status has a strong impact on income trajectory: divorced/widowed people are more likely than the married to follow a decreasing or zigzag trajectory. Another important explicative variable is the educational level: the risk of experiencing a rising trajectory is twice as high for highly-educated pensioners than it is for pensioners with low education. We can also notice that a rising income trajectory is more frequent for recent retirement cohort.

Table 9 – Multinomial logistic model

	Decreasing trajectory				***Rising trajectory***				***Zigag trajectory***			
	Coef.	Std. Err.	P>z	Relative Risk	Coef.	Std. Err.	P>z	Relative Risk	Coef.	Std. Err.	P>z	Relative Risk
sex (male)												
Female	-0.085	0.032	0.008	0.918	-0.281	0.032	0	0.755	-0.185	0.032	0	0.831
cohort (1926-1926)												
1930-1933	0.046	0.053	0.387	1.047	0.1	0.053	0.058	1.105	0.068	0.052	0.194	1.07
1934-1937	-0.126	0.056	0.024	0.882	0.288	0.054	0	1.334	0.053	0.054	0.335	1.054
1938-1942	-0.23	0.062	0	0.795	0.599	0.06	0	1.82	0.15	0.061	0.013	1.162
marital_status (married)												
Unmarried	0.974	0.058	0	2.648	-1.145	0.061	0	0.318	-0.124	0.058	0.033	0.883
Single	0.827	0.044	0	2.286	-0.698	0.047	0	0.497	0.023	0.046	0.615	1.023
educational level (low)										1		
Medium	-1.056	0.046	0	0.348	0.579	0.052	0	1.785	-0.396	0.05	0	0.673
High	-2.641	0.113	0	0.071	0.99	0.134	0	2.692	-1.267	0.11	0	0.282
Income quintile 3 years before retirement (3°)												
1° quintile	-40.645	7615668	1	0	-0.379	0.046	0	0.685	-1.557	0.052	0	0.211
2° quintile	-0.574	0.052	0	0.563	0.17	0.05	0.001	1.185	-0.278	0.051	0	0.757
4° quintile	0.059	0.049	0.226	1.061	-0.911	0.053	0	0.402	-0.323	0.05	0	0.724
5° quintile	-0.486	0.049	0	0.615	-41.2	7535625	1	0	-1.715	0.056	0	0.18
retirement cohort (1990-1991)		1										
1992-1993	0.544	0.054	0	1.723	-0.297	0.049	0	0.743	-0.164	0.05	0.001	0.849
1994-1995	0.782	0.056	0	2.186	-0.221	0.052	0	0.801	-0.052	0.052	0.32	0.949
1996-1997	0.398	0.061	0	1.489	0.001	0.054	0.982	1.001	-0.149	0.056	0.008	0.862
1998-2000	0.038	0.062	0.539	1.039	0.243	0.054	0	1.275	-0.142	0.057	0.012	0.868
_cons	0.231	0.08	0.004	1.259	0.749	0.077	0	2.114	0.814	0.078	0	2.257

Ordered Logistic Regression

In order to explicit better the role of the level of income on subsequent income changes, we also fit an ordinal logistic model on the categorical, ordinal variable "Income quintile 3 years after retirement".

The Odds Ratio in the 5th column of table 10 are the proportional odds ratios for the ordered logit. They can be obtained by exponentiating the ordered logit coefficients. Now, if we view the change in levels in a cumulative sense and interpret the coefficients in odds, we are comparing those who are in group 5 (richest) to those who are poorer (groups 4 or less). Thus, for females, the odds of high "ending quintile" is 0.854 times the odds ratio of men, everything else equal.

Similarly, having some or, better still, a lot of, education increases the chances of being in the richest quintile 3 years after retirement, everything else equal. And living without a partner seems to reduce the risk of being in the richest quintile. As expected, being rich before retirement increases the odds of being still (relatively) rich also after retirement.

Income quintile 3 years after retirement (5)	**Coef.**	**Std. Err.**	**P>z**	**Odds Ratio**
Sex (male)				
Female	-0.158	0.020	0.000	0.854
Cohort (1926-1926)				
1930-1933	0.112	0.034	0.001	1.118
1934-1937	0.324	0.035	0.000	1.383
1938-1942	0.580	0.039	0.000	1.787
Marital_status (married)				
No longer married	-1.221	0.037	0.000	0.295
Never married	-0.978	0.031	0.000	0.376
Educational level (low)				
Medium	1.188	0.032	0.000	3.280
High	2.579	0.083	0.000	13.183
Retirement cohort (1990-1991)				
1992-1993	-0.370	0.032	0.000	0.690
1994-1995	-0.467	0.033	0.000	0.627
1996-1997	-0.112	0.036	0.002	0.894
1998-2000	0.201	0.036	0.000	1.222
Income quintile 3 years before retirement (1°)				
2° quintile	1.166	0.033	0.000	3.209
3° quintile	2.071	0.034	0.000	7.932
4° quintile	2.915	0.036	0.000	18.445
5° quintile	4.429	0.042	0.000	83.854
/cut1	-0.318	0.049		
/cut2	1.219	0.050		
/cut3	2.613	0.051		
/cut4	4.300	0.054		

Conclusions. Where do we go from here?

Our analysis shows that income levels and changes are associated with gender, family type, age and income group at the start. There is, for example, evidence of greater income rigidity for those older people at the bottom of the income distribution.

The concept of income mobility and its operationalisation, obviously, impact on our results. Therefore, we intend to improve our analysis in three senses: by changing our scale (from income quintile to income percentile); by better defining the magnitude of income change (in order to distinguish large from small changes); by examining the nature of income received (e.g. salary, pension benefits, private transfers, etc.).

The role of household changes on equivalent income also needs to be better understood: household structures are not given, but form part of a decision process that interacts, in a complex way, with economic well-being. This is a part of our data base that is worth closer scrutiny.

Acknowledgements

We thank Statistics Finland TK-53-1783–96 for making the data available to us, and we gratefully acknowledge Financial support from the UE – Sixth Framework Programme: "Major Ageing and Gender Issues in Europe – MAGGIE" (Contract no.: CIT5 – 028571).

Main references

Bardasi E., Jenkins S. (2002) *Income in later life: work history matters. An analysis for Britain using BHPS*, Institute for Social and Economic Research, University of Essex.

Behrendt Ch. (2004) "Pensions de retraite et distribution des revenus dans une perspective comparative", in *Age, génération et contrat social: l'état-providence face aux changements démographiques*, a cura di J. Véron, S. Pennec, J. Légaré, Paris, Les cahiers de l'Ined, pp. 183-199.

Börsch-Supan, A. (2007) *European Welfare State Regimes And Their Generosity Towards the Elderly*, MEA Discussion Paper, n. 128, University of Mannheim (http://www.mea.uni-mannheim.de/publications/meadp_128-07.pdf)

De Santis G., Seghieri C., Tanturri M. L. (2005) *The economic well being of older Europeans,* Working paper 2005/2, Dipartimento di Statistica "G. Parenti", Università di Firenze (http://www.ds.unifi.it/ricerca/pubblicazioni/working_papers/2005/wp2005_02.pdf)

De Santis, G., Seghieri C., Tanturri M.L. (2005) *Children and standard of living in old age*, Electronic WP of the Statistical Department, n. 5, Firenze. (http://www.ds.unifi.it/ricerca/pubblicazioni/working_papers/2005/wp2005_05.pdf)

Disney R., Whitehouse E. (2002), The economic well-being of older people in *international perspective: a critical review*, LIS Working paper, n. 306.

Forssén K., Laukkanen A.M., Ritakallio V.M. (2001), in http://www.york.ac.uk/inst/spru/research/nordic/finlanddemo.pdf.

Gardiner K., Hills J. (1999) "Policy implications of new data on income mobility", *The Economic Journal* 109 (February): F91-F111.

Hagenaars, A., de Vos K., Zaidi M.A. (1994) *Poverty Statistics in the Late 1980s: Research Based on Micro-data*, Office for Official Publications of the European Communities. Luxembourg.

Herbertsson T. T., Orszag J. M., Orszag P.R. (2000) *Retirement in the Nordic Countries. Prospects and Proposals for Reform*, Nordic Council of Ministers.

Martikainen P., Martelin T., Nihtila E., Majamaa K., Koskinen S. (2005) "Differences in mortality by marital status in Finland from 1976 to 2000: Analyses of changes in marital-status distributions, socio-demographic and household composition, and cause of death", *Population Studies*, 59 (1): 99-115.

Reil-Held, A. (2006) "Crowding out or crowding in? Public and private transfers in Germany", *European Journal of Population*, 22(3): 263-280.

Rigg, J.A. and Sefton, T.A. (2004) *Income dynamics and the life cycle*, CASE Paper 81, London School of Economics, London.

Smeeding, T. (2003) "Income maintenance in old age: current status and future prospects for rich countries", *Genus*, 59(1): 51-83.

Statistics Finland, 2007: http://www.stat.fi/

Zaidi A., Rake K., Falkingham J. (2001) *Income mobility in later life*, SAGE, Discussion paper, 3, London School of Economics, London.