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**Working Paper**

## Getting Older, Getting Poorer? A Study of the Earnings, Pensions, Assets and Living Arrangements of Older People in Nine Countries

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# **Luxembourg Income Study Working Paper Series**

**Working Paper No. 314**

**Getting Older, Getting Poorer?  
A Study of the Earnings, Pensions, Assets and Living  
Arrangements of Older People in Nine Countries**

**Atsuhiko Yamada and Bernard Casey**

**April 2002**



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**Luxembourg Income Study (LIS), asbl**

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## SUMMARY

Ageing involves not one but several transitions. People move from working to not working, from relying upon labour income to relying on transfers. They also tend to live in smaller households, not only because any children will have moved away but also because, at some stage, a spouse dies. People move homes and sometimes they move back to live with their now grown-up children.

This paper examines the wellbeing of people as they pass through the later stages of their life and through different labour market statuses and domestic statuses. It examines and compares nine countries – Canada, Finland, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States. It draws particularly from a special analysis of micro-data sets that report on incomes, but it complements this with an analysis of data on wealth, on consumption, on housing and on the use of in-kind services provided by the state.

The paper is original in more than one way. First, its analysis is based upon the individual rather than the household. This means both that the importance of own-income sources can be evaluated and that intra-familial transfers are observed. Second, it includes Japan, a country where both employment patterns and living patterns for older people are substantially different to those of many other OECD countries. Many more work, and many more live in multigenerational households.

Principal findings are that, although income does fall with age, people over retirement age are not substantially less well off than people of working age. The difference is further reduced when the absence of work-related expenses and older people's generally lower housing expenses are taken into account. Remarkably, and regardless of the public-private mix of pensions and the importance or otherwise of work, the income of retirement-age people, relative to that of working-age people, is rather similar across all nine countries. Nevertheless, some older people, particularly old single women, fare less well, and this is the case in all nine countries. Widowhood reduces wellbeing, particularly because in many countries all or part of the husband's pension is lost, but also because single people do not enjoy the scale economies enjoyed by couple households. Those old single people who move back with their adult relatives tend to fare much better than those who stay living alone.

Consumption of in-kind services provided by the state, such as social care and especially of health care services, can substantially enhance the income of the oldest of the old. This needs to be taken into account when relative wellbeing is assessed. The extent to which such services are provided cost-free makes comparisons between countries as different as the United States and Sweden quite fraught.

Analysis such as was carried out here on a one-off basis needs to be repeated to monitor changes in wellbeing in old age. This is important because pension policy is being changed. Older people are being encouraged to work longer and private rather than public provision is being promoted.

## RÉSUMÉ

Le vieillissement de la population n'entraîne pas une mais plusieurs transitions. Les personnes passent du monde du travail à un monde sans travail et ils doivent dorénavant compter sur les transferts de revenus plutôt que sur la perception d'un salaire. Les tendances sont aussi à des foyers plus petits, le résultat non seulement généré par le départ des enfants mais aussi par le décès à un moment donné de l'époux/épouse. Quelquefois, les personnes déménagent pour revenir vivre avec leurs enfants adultes.

Ce document examine le bien être des gens à travers les différents stades de la deuxième partie de leur vie ainsi qu'à travers des statuts domestiques et professionnels différents. Neuf pays sont examinés et comparés : le Canada, la Finlande, l'Allemagne, l'Italie, les Pays-Bas, la Suède, le Royaume-Uni et les Etats-Unis. Le document s'appuie plus particulièrement sur l'analyse des micro-données contenues dans le rapport sur les revenus, mais ces informations sont complétées par l'analyse des données sur les richesses, sur la consommation, sur le logement et sur l'utilisation des services en nature fournis par l'état.

Ce document est inédit à plusieurs titres. Premièrement, il est basé sur une analyse individuelle plutôt que par foyer. Ceci permet aussi bien l'évaluation de l'importance de sources de revenu propres que l'observation de transferts internes à la famille. Deuxièmement, le Japon est inclus à l'étude, pays où les schémas d'emploi et les modes de vie concernant les personnes âgées sont fortement différents de ceux des autres pays de l'OCDE. Au Japon, davantage de personnes âgées travaillent et davantage vivent dans des foyers contenant plusieurs générations.

Les conclusions principales sont que, malgré une baisse des revenus, les retraités ne sont pas moins bien à l'aise financièrement que ceux qui travaillent. La différence se réduit davantage quand il n'y a plus de dépenses liées au travail et que les dépenses liées à l'habitat sont prises en considération. D'une manière notable, toutes retraites confondues, publiques ou privées, et sans considérer l'importance du fait de travailler ou pas, les revenus des retraités et ceux des travailleurs sont très semblables à travers les neuf pays. Cependant, certaines personnes âgées, et en particulier les femmes seules âgées, s'en sortent moins bien, et ceci dans les neuf pays. Le fait d'être veuve réduit le bien-être, en particulier parce que dans beaucoup de pays, tout ou partie de la retraite du mari est perdue mais aussi parce que les personnes seules ne peuvent pas bénéficier des économies d'échelle dont bénéficient les couples. Les personnes âgées seules qui retournent vivre auprès d'un parent adulte, ont une meilleure situation financière que ceux qui restent isolés.

La consommation de services en nature fournis par l'Etat tels que les soins sociaux et plus particulièrement les soins de santé, peut accroître le revenu des personnes les plus âgées. Ceci doit être pris en considération lors de l'évaluation du bien-être relatif. La mesure à laquelle de tels services sont fournis gratuitement rend la comparaison assez difficile entre des pays aussi différents que les Etats-Unis et la Suède.

Une analyse unique telle que celle entreprise ici a besoin d'être répétée pour pouvoir contrôler les changements de bien-être des personnes âgées. Ceci est important dans la mesure où la politique sur les pensions est en cours de changement. Les personnes âgées sont appelées à travailler plus longtemps et une provision privée plutôt que publique est encouragée.

## TABLE OF CONTENTS

1. Introduction.....	8
2. Some basic facts about the wellbeing of older people .....	9
2.1. Their disposable income.....	9
2.2. Their consumption.....	10
2.3. The incidence of low (and high) incomes .....	12
2.4. The make up of their incomes .....	13
3. How retirement pattern affects wellbeing.....	15
3.1. The transition from work to retirement .....	15
3.2. The impact of labour market status on income .....	16
3.3. The possible affect of alternative retirement patterns .....	17
4. How the mix of resources affects wellbeing .....	18
4.1. The difference between recipients of means-tested benefits and private pensions .....	18
4.2. The relation between income package and labour market status .....	20
5. How living arrangements affect wellbeing .....	20
5.1. The different ways in which older people live .....	20
5.2. The special situation of older women.....	21
5.3. The possible effect of alternative living arrangements.....	23
6. Other determinants of wellbeing – wealth and benefit in kind .....	24
6.1. The importance of market wealth.....	24
6.2. The importance of in-kind benefits .....	25
7. Conclusions and policy implications .....	26
ANNEX 1. DATA, CONCEPTS, AND METHODS.....	29
Data Sets .....	29
Individuals are used as the basis of analysis .....	29
Measures of economic well-being – adjusting for household economies of scale .....	31
Endnote 1: Algorithm for calculation of “own” self-employed income .....	32
Endnote 2: Sensitivity tests for different equivalence scales.....	33
ANNEX 2. TABLES .....	37
ANNEX 3. CHARTS .....	56
BIBLIOGRAPHY .....	67

## TABLES AND CHARTS

Table 2.1	Adjusted median incomes in mid 1990s - selected age groups .....	37
Table 2.2	Changes in disposable income after middle age.....	37
Table 2.3	Consumption of older people .....	38
Table 2.4	Consumption of selected items.....	39
Table 2.5	Proportion of homes fully owned, by age.....	40
Table 2.6	Spending level on housing, by age .....	40
Table 2.7	Distribution of population by income group .....	41
Table 2.8	Proportion of the population above the middle-upper income in cut-off line .....	41
Table 2.9	Absolute comparisons of wellbeing based on purchasing power parities .....	42
Table 3.1	Proportion of men aged 60 to 64 that are in the bottom income quintile, by retirement transition category .....	42
Table 3.2	Results of a "pseudo-simulation" where countries are assumed to have the work-retirement patterns of Japan or Finland .....	43
Table 4.1	Recipients of means-tested benefit and private pensions and the importance of these benefits..	44
Table 4.2	Mean disposable income of recipients of means-tested benefits.....	45
Table 4.3	Mean disposable income of private pension beneficiaries .....	45
Table 4.4	Combination of private and public pension of early retirees and normal retirees.....	46
Table 5.1	Proportion of young adults living with their parents.....	47
Table 5.2	Proportion of older people by household type.....	47
Table 5.3	Proportion of older women in the lowest income quintile by living arrangements.....	48
Table 5.4	Difference between the disposable income of widows living alone and couples in two-person households .....	49
Table 5.5	Mean value of "own pensions" for people aged 65 and above.....	50
Table 5.6	Results from a "pseudo micro-simulation" where countries are assumed to have the living arrangements of Japan or Finland.....	51
Table 6.1	Proportion of households reporting market wealth couple households.....	52
Table 6.2	Ratio of market wealth to gross income couple households.....	53
Table 6.3	Estimated rental value of owned home, as a percentage of real spending of each household....	54
Table 6.4	Relative importance of benefits in kind.....	55
Chart 2.1	Main components of disposable income, older people living as couples .....	56
Chart 2.2	Make up of "own" income, older people living as couples .....	57
Chart 2.3	Main components of disposable income, "older old" living as "subordinates" .....	58
Chart 2.4	Make up of "own" disposable income, "older old" living as "subordinates" .....	59
Chart 3.1	Work-retirement transitions for older men.....	60
Chart 3.2	Proportion of workers (without a pension) and early retirees (not at work, with a pension) in each income quintile.....	61
Chart 3.3	Proportion of pensioners who work and who do not work in each income quintile .....	62
Chart 4.1	Proportion of recipients of means-tested benefits and public pensions by income quintile.....	63
Chart 4.2	Proportion of recipients of private pensions and public pensions by income quintile .....	64
Chart 5.1	Household size by person's age .....	66

Chart A1.	Sensitivity to equivalence scales – income necessary for additional household members to keep the same level of well-being .....	33
Chart A2	Gini coefficients by value of alpha.....	34
Chart A3	Low-income rates for working-age population and retirement-age population .....	35
Chart A4	Middle-upper income rate for working-age population and retirement-age population .....	36

## 1. Introduction

1. In this paper we examine the economic situation of older people in nine OECD countries – Canada, Finland, Germany, Italy, Japan, Netherlands, Sweden, UK and USA – using standardised, and therefore comparable, data. To our knowledge, it is first time that Japan has been included so fully in such a study.<sup>1</sup> The data sources used allow an unusually comprehensive picture of wellbeing to be drawn, since they cover wealth and consumption as well as income. The reference period is the middle of the 1990s.

2. The analysis has considerable relevance for policy. In particular, it permits a greater understanding of the several transitions that people experience as they grow older, namely how they:

- move from paid work to retirement;
- shift the main source of their income from earnings to pensions;
- rely, to an increasing extent, on non-pension as well as pension benefits; and, sometimes,
- change their living arrangements.

3. In order to do this, the analysis uses older individuals, rather than older families, or families headed by an older person, as its basic unit of analysis. It examines individuals with respect to differences in their employment and income sources but also with respect to differences in their domestic and housing situations.

4. The paper shows the following. First, older people in most countries have incomes of between 70 and 80% of those of people of working age. This means that, on average, and with assets and the falling away of work-related expenses taken into account, many people manage to arrange things so that they go into old age without experiencing a dramatic fall in their living standards. This happens regardless of the level of public pension expenditure in the country concerned. The data are consistent with considerable substitutability across the tax-benefit system, work-to-retirement patterns, and household living arrangements.

5. Second, although income is generally not lower for old women living with a spouse (or as part of a multigenerational family), older women who live alone are an object of concern. It is true that tax and benefit systems work in their favour, but they tend to suffer through the workings of pension arrangements, especially since not all private pensions offer survivors benefits. Also, the loss of household economies of scale is an important factor in reducing the economic wellbeing of widows.

6. The structure of this paper is as follows. In the next section, we examine the living standards of older people and their consumption patterns. In following three sections, we extended the analysis in three directions to see, first, how wellbeing changes as people cease to work, second, how wellbeing is affected by the kind of income received and what the consequences of different income mixes are, and third, how wellbeing is affected by different living arrangements. In the penultimate section of the paper, we discuss other resources in retirement, especially wealth and benefits received in kind. In the last section, we draw some conclusions for policy. Here, we emphasise the importance of earnings in old age and the implications of there being many pathways to early retirement.

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1. There was an earlier study carried out by Disney *et al.* (1998) that included Japan. However, it did not cover older people living in three generation households, which are quite common in Japan and in Italy. We believe that one of the advantages of our analysis is that it explicitly includes these older people.

7. A technical appendix is used to explain our research framework and to show how we are able to analyse both household and individual incomes simultaneously. The framework we have developed is, we suggest, especially useful for investigating wellbeing in countries where multigenerational families are still relatively common.

## 2. Some basic facts about the wellbeing of older people

### 2.1. *Their disposable income*

8. In this analysis, the economic wellbeing of individuals is measured taking account of differences in household size. More details of the method used are given in Annex 1, but, in short, we assume (i) that members of a household share amongst themselves all income from all sources and (ii) that living together generates some economies of scale. Results will vary according to the exact presumptions made about the needs of additional household members and, thus, of which “equivalence scale” is used.

9. Table 2.1 shows the income of people in old age as a multiple or fraction of the income of people of working age – the population aged 18 to 64.<sup>2</sup>

**Table 2.1 Adjusted median incomes in mid-1990s - selected age groups**

10. The table is to be read as follows, with the example being that of Canada. The first column shows that the average person aged 65 or above has an income of 75% of that of all people in the 18-64 age range. The next two columns show the results separately for men and for women. The following four columns compare people of various other age groups with the average of all people in the 18-64 age range. Thus, column four shows that people ages 45-54 have an income some 15% higher than the average for all 18-64 year olds. The next three columns separate out those people close to retirement, those in the first ten years after retirement, and those in the last stages of their lives.

11. The table shows that the overall level of income among people over 65 is somewhat higher in Italy, Sweden and Germany than in the other countries, and somewhat lower in the United Kingdom. The incomes of older men are somewhat higher than those of older women, and this is the case in all of the countries. People in the first ten years after “normal” retirement age have, on average, incomes of at least 70% of those of adults below “normal” retirement age. However, the incomes of the “older old” – people aged 75 and above – are lower than those of the “younger old” – people aged 65-75. Some of this is probably a cohort effect as much as an age effect.<sup>3</sup>

12. The difference in income between “middle age” – when most household contain at least one person at work – and “old age” – when most household are made up of non-working people – can be substantial. This is shown in Table 2.2, from which we can see that, in Canada, a person aged 65-74 has an income of only 69% of that of a person aged 45-54. Across all the countries, the difference in income

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2. The “true” replacement rate refers to an individual’s post-retirement income compared with his or her pre-retirement income. This cannot be measured directly by cross-sectional household surveys of the sort used in this paper. For some purposes, a better approximation will be found in Whitehouse (2001) which looks at how full career workers at different income levels would fare under the current pension and tax rules of various countries.

3. That is, it reflects the fact that older generations had lower earnings than their successors, and that pensions and other forms of retirement incomes reflect this.

between the age when most enjoy peak earnings<sup>4</sup> and the age when they are in retirement is in excess of 70%. An exception to this appears to be the United Kingdom, where quite a substantial drop in wellbeing seems to occur. However, if account is taken of the absence of work related expenses, of possibly lower housing costs (discussed in Section 2.2), and of the opportunity to liquidate assets, the fall in the level of wellbeing that is associated with the transition from work to retirement is not as substantial as Table 2.2 suggests.

**Table 2.2 Changes in disposable income after middle age**

## **2.2. Their consumption**

13. Consumption might be a better indicator of economic wellbeing than is disposable income.<sup>5</sup> This is because it is through consumption, rather than through income, that people gain utility. The next table shows the average spending level of older people relative to people coming from a household comprising a couple and two children. These people are taken as representing a “typical” younger household. To calculate relative consumption, we applied the same method of adjusting for economies of scale as we did for income. Since we took the data from several sources, the results shown here should be treated carefully. However, we were able to harmonise the definitions of the various data sets such that the main items are broadly comparable.

**Table 2.3 Consumption of older people**

14. Table 2.3 shows that consumption levels fall for older people in most countries. This is more the case for single older people than for older couples. However, in Germany, Japan and the Netherlands, older couples appear to have consumption levels as high as do younger people

15. When we consider consumption of particular items, we see some substantial differences between older and younger people. Some of these are illustrated in Table 2.4, which concentrates on consumption of food and (non-alcoholic) beverage, transport and recreation and culture. In the table, expenditure is normalised so that a younger couple’s total consumption is set at one unit after standardising for household size. Thus, the first column of the table shows that a Canadian single old person spends 0.15 units on food, 0.09 units on transport and 0.07 units on recreation. The fourth column shows that that single older person consumes only about three quarters of the amount on food as a person in the reference household, only about a third of the amount on transport and only about a half the amount on recreation and culture.

16. Older couples appear to consume very much the same amount of food as do younger people, but older single people consume rather less. Older single people tend to be female and they also tend to be older. In addition, and as Table 2.1 has already shown, such older people also have lower incomes.

17. Older people consume much more transport in Canada and the USA than elsewhere, but so do people of all ages. This reflects the size of the two countries. Single old people consume less than do younger old people, which reflects, an age difference and an associated limited mobility. The lower spending by older people also reflects the falling away of work related costs – of which transport is a major component. Lastly, we should note that in many countries older people are entitled to free or reduced price

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4. See OECD (1998b), chart 4.3 in p.133 for the international comparison of the wage curves. Most countries have their peak in the age 45-54.

5. Consumption can be financed by consumption of assets and by gifts, and so is not a function only of income.

use of public transport, so that actual expenditures do not fully reflect the differences in the amount of travel undertaken.

**Table 2.4 Consumption of selected items**

18. We can see the greatest differences between countries when we consider consumption of recreation and culture. Older couples in the Netherlands and the United States seem to maintain spending on such items, those in Germany and Japan to increase it. Single old people – again, perhaps, because they are older and poorer – reduce their consumption of recreation substantially. In the case of Japan, the numbers are a bit misleading, since some 10% of spending by the reference group of people with children is accounted for by education. This is not an item that can be directly shared and its existence places some constraints upon younger couples' consumption.<sup>6</sup> The falling away of education costs might be one reason why, as people age in Japan, they are able to increase dramatically their consumption of paid-for recreation and culture.

19. Another possible distortion, affecting all countries, is the exclusion of consideration of housing from the comparison of consumption. Housing has its impact in two ways. First, paying rent or mortgage reduces the ability to consume the items included in Table 2.3. Second, owner occupancy enables consumption of housing at no current cost. Younger people are much less likely to be owner-occupiers, and are much more likely to be paying mortgages. Older people are more likely to have paid off mortgages and be enjoying increased consumption in the form of "imputed rent". The implications of home-ownership are discussed further in Section 6.1 Here, we summarise available information, first on the extent to which older people still have to pay mortgages, and second on older people's actual outgoings for housing. Data limitations mean that the analysis is restricted to a limited number of countries.

20. Table 2.5 suggests that older people, at least if they are home owners, are more likely to have paid off most, if not all of their mortgage payments. The results for the United Kingdom show this particularly clearly.

**Table 2.5 Proportion of homes fully owned, by age**

21. Table 2.6 provides details for the older population as a whole and so includes those who are renting as well as those who are owning or buying their accommodation. It is to be noted that there are considerable differences, not only between countries but also within countries by age, in the extent to which rented or owner-occupied accommodation prevails.

22. From Table 2.6, it would appear as if, in general, older people do have lower housing costs – in some cases substantially lower. The case of older single people in Canada stands out as an exception to this. Hence, we find some support for the proposition that a reduction in housing costs in older age compensates for a part of the fall in disposable income that is experienced as people move from being at work to being retired.

**Table 2.6 Spending level on housing, by age**

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6. We can propose that parents' utility will be affected by the utility of their children. Based on this assumption, spending on children's education increases the parents' utility. If that is the case, we should not really say that spending on the education is a "constraint" on the parents.

23. Taken together, the data on income and consumption suggest that older people, on average, enjoy a reasonable standard of wellbeing in the nine countries. However, that this applies on average does not mean that it applies to all old people

### **2.3. The incidence of low (and high) incomes**

24. The wellbeing of older people is a function not only of their absolute income level but also of their standing in the overall income distribution. Income inequality is usually summarised by indicators such as the Gini coefficient. Nevertheless, we can understand the real situation of older people better if we also look at the distributions of incomes themselves

25. The total population can be divided into five equally sized income groups, or “income quintiles”, whereby the bottom group contains the 20% with the lowest incomes and the top group the 20% with the highest incomes. Table 2.7 shows what proportion of the older population has an income that is no greater than that of those in the total population who are in the lowest quintile. It also shows whether older people are disproportionately represented in the lower income groups.

**Table 2.7 Distribution of population by income group**

26. Table 2.7 is to be read as follows, using Canada as the example. The first column shows that, among 65-74 year-olds, 22% have incomes that would put them in the bottom quintile and 11% have incomes that would put them in the top quintile. Nevertheless, the greatest concentration of older people can be found in the second quintile, not the first (bottom) quintile. They are only slightly over-represented in the bottom quintile. They are, however, substantially under-represented in the top quintile.

27. In all countries, older people are more likely to be towards the bottom of the income distribution, although their over-representation in the lower quintiles is less pronounced in Sweden than elsewhere. In all countries except Italy, the “older old” are lower in the income distribution than are the “younger old”. With respect to the “older old”, the concentration is in the lowest quintile rather than in the second quintile.

28. The incidence of “middle and upper incomes” – that is incomes at least 150% of the median for the working age population – is shown in Table 2.8. The table is to be read as follows, again using Canada as the example. The first column shows that 18% of people in Canada have a “middle” or “upper” incomes. The third column shows that 8% of people aged over 75 are in this position. In most countries, around 10% of older people have a “middle” or “upper” income but in the US and Italy, this share rises to over 15%. Nevertheless, except in Japan, the proportion of older people with a “middle” or “upper” income decreases with age. The explanation for Japan being different lies in the living arrangement of many older people, and these are discussed in Section 5.

**Table 2.8 Proportion of the population above the middle-upper income in cut-off line**

29. Usually, international comparisons are based on measures such as the median income of the working population or the income of a certain quintile *in each country*. In other words, older people’s incomes are judged high or low in comparison with the incomes of people of other ages in their own country.

30. We would argue that a ranking of countries based upon the share of older people having a low income does not always capture the reality of wellbeing amongst older people. In particular, the ranking is sensitive to the selection of the benchmark chosen (Disney and Whitehouse, 2001). For example, we can compare a country (A) with a high unemployment rate with a country (B) with a low unemployment rate. If the benchmark for a low income is set as 50% of the median disposable income of the working age

population, country A is likely to have a relatively low median disposable income and, therefore, a relatively low “low-income benchmark”, whilst country B is likely to have a relatively high median income and, therefore, a relatively high “low income benchmark”.

31. It is possible to compare older people’s incomes with the incomes of older people in other countries or with some international average.<sup>7</sup> (Such a process is, however, essentially an arbitrary one. With which country, or if an average of countries is used, with which countries, should the comparison be made?) Although there is little direct policy relevance in such comparisons, they can provide a useful reminder that the wellbeing of older people depends not only on the share of national product that goes to them, but on the total size of that product. Comparisons in purchasing power parity (PPP) terms,<sup>8</sup> as are made in Table 2.9, illustrate this.

**Table 2.9 Absolute comparisons of wellbeing based on purchasing power parities**

32. The first column in Table 2.9 shows mean disposable income of people aged 65 and older. Not surprisingly, the absolute level of disposable income is highest in those countries with a high level of GDP per capita – the United States, Japan and Canada. The third and fourth columns show the mean disposable income of the lowest quintile of the working age population and of old women who live alone. The fifth column shows that level of income that is normally associated with the “low income threshold” of 50% of the median. In four countries this is about \$7 000, in three, about \$10 000. The final two columns show, therefore how many older people fall below these absolute thresholds. Overall, the table confirms the proposition that merely ranking countries on relative terms provides less than a full picture of the wellbeing of the elderly.

#### ***2.4. The make up of their incomes***

33. One of the advantages of the analytical approach taken by this paper is that it enables us to identify a person’s own income and distinguish it from the income of other people living in the same household. Accordingly, we are able to illustrate not only an individual’s income from work or from a pension scheme but also the importance of intra-household transfers. Other studies, using household based data (for example, Yamada 2001), have pointed out that in some countries – notably, Italy, Japan and the United States – a substantial proportion of the income from which older people benefit is income from labour – as much as 30%. However, without the identification of who actually earns this labour income, it is hard to know whether it has been generated by the older people themselves or by adult children who are living with them. Even if we know an individual’s labour market status, we cannot understand the importance of the older person’s “own” earnings without being able to identify his or her “own” income. With respect to pension incomes, it is of interest to know whether the pension is the person’s “own” pension or whether it is one derived from their (living or deceased) spouse. This is particularly important when the situation of women is being considered.

34. There are three principal sources of income in old age that should be looked at. These are public pensions, private pensions and wages (or profits from self-employment). Each of these sources of income can be subject to tax. In addition, an individual living with others contributes to, or draws from, the pooled income of the complete household. In the first case, the person is a maker of intra-household transfers, in the latter case, the person is a recipient of such transfers. Lastly, when people live together, they realise some economies of scale, effectively inflating total income and, thus, their share of it.

7. For an example with respect to children, see Rainwater and Smeeding (1999).

8. PPPs for GDP for all countries have been calculated on the basis of the structure of their GDP using the 1968 SNA.

35. How important “own” income – whether from “own” pension or “own” employment – is, how important intra-familial transfers are, and how large the benefits of living together are, is shown in Chart 2.1. The example used is that of people aged between 65 and 74 who are living with a spouse. The reference point is the person’s adjusted disposable income. This is defined as the total income of the household, inflated by the equivalence scale gained by having two people living together, and then divided equally between the people in the household. The equivalence scale used implies that the economies of scale of living together make each individual about 29% better off.<sup>9</sup>

### **Chart 2.1 Main components of disposable income, older people living as couples**

36. Chart 2.1 is to be understood as follows. Again the case of Canada can be considered. Among men 65-74, “own” after tax income, whether from a pension or from work, is the equivalent of over 75% of disposable income. The average man makes transfers, from his “own” income to his spouse that are the equivalent to some 20% of his disposable income.

37. Chart 2.1 shows that married women receive less than half of their disposable income from their “own” income, and benefit both from the economies of scale of the partnership and from transfers made to them by their husbands. In Sweden and Finland, the extent of intra household transfers is somewhat smaller than in the other countries.

38. The importance of “own” public pensions and of “own” private pensions to total income can be seen in Chart 2.2. Chart 2.2 is to be understood as follows. Again the case of Canada can be considered, and again the reference point is the individual’s adjusted disposable income. Amongst married men aged 65-74 in Canada, income from their own employment is the equivalent of 10% of their disposable income. Their “own” public pensions are the equivalent of another 40%. Their “own” private pension is the equivalent of some 33%. They also pay taxes on their “own” income equivalent to about 18% of their disposable income.

### **Chart 2.2 Make up of "own" disposable income, older people living as couples**

39. Chart 2.2 shows that, for men, “own” public pensions are by far the most important source of disposable income in Finland, Germany and Italy and, to a somewhat lesser extent, Sweden. For men, “own” private pensions are important in Canada, the Netherlands and the UK. For women, public pensions are important and private pensions are unimportant. The high level of “own” public pension in Finland and Sweden reflects the fact that, from an early stage in the history of their national welfare states, these countries accorded pensions to individuals, rather than to households or to earners (with or without any supplement for dependants).

40. “Own” tax is substantial in Finland, Sweden, and Netherlands. In these three countries, the state “claws-back” considerable amount of the benefits it pays out. Macro-level data shows a similar picture (Adema, 2001).

41. Income from “own” work is of considerable importance in Japan and to a lesser extent in the USA. It is not, however, in Italy, indicating that its importance in household income there results mainly from the presence of working adult children.

42. Chart 2.3 and Chart 2.4 are based on the same concepts used in Chart 2.1 and Chart 2.2 except that they refer to single people aged 75 or above who are living with others but who are not the household

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9. The equivalence scale used is based upon the square root of the number of people in the household, in this case two. The square root of 2 is approximately 1.41. The result of  $(1.41-1)/1.41$  is approximately 0.29.

head. In other words, they are “subordinates” in the households.<sup>10</sup> Older single people who are living in this way – probably in the home of one or more of their adult children – enjoy greater economies of scale than older people who are living in a couple household. However, the intra-household transfers from which they benefit are not larger than those received by women living with a spouse, at least in most of countries. In the case of Japan, however, intra-household transfers are an important contributor to the achievement of wellbeing

### Chart 2.3 Main components of disposable income, “older old” living as “subordinates”

43. Interestingly, regardless of the differences in the retirement income systems of countries, single older people living with their families still receive some 40% of their income from their own resources – mainly their “own” public pension. As Chart 2.4 shows, however, again Japan is the exception. Needless to say, we should be careful exactly how we interpret the last two charts. They show cross-sections not cohorts, and it might well be that people – especially women – retiring today have longer contribution records, and are more likely to have pensions in their own right, than were women retiring some two decades ago.

### Chart 2.4 Make up of “own” disposable income, “older old” living as “subordinates”

## 3. How retirement pattern affects wellbeing

### 3.1. The transition from work to retirement

44. When we turn our attention to the transition from work to retirement, and to the various pathways by which people leave paid employment, we can see that an even greater number of elements make up the income package of older people. Various combinations of labour income, pensions and other benefits are possible,<sup>11</sup> and the substitutability of these sources that must be taken into account in policy formulation. Chart 3.1 provides a snapshot of older men at successive ages, allocating them into various labour market and benefit statuses. Since original data sources are typically annual surveys, there could be a minor problem of response lag. For example, a person might be retired at the time of survey, but report earnings during the preceding year, prior to retirement. Nevertheless, this is unlikely to alter the findings presented here in any major way.

45. From Chart 3.1, it is possible to identify:

- *Workers under 65 who have no pension*: The number of these “normal” workers usually begins to decline after the age of 50, with larger declines after the age of 54 and 59.
- *Non-workers aged 65 and above who have a pension*: These are “normal” retirees and constitute a clear majority of people over the age of 65 in all countries except Japan.

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10. Data on Sweden is not available, since there the relevant information is ordered by tax unit rather than household.

11. A similar analysis can be made for women. However, the figures are much more difficult to interpret, since it cannot be presumed that all or, indeed, the majority of older women are transiting from work to retirement. Many might not have worked at all, or not have worked for many years. Thus, the data in this section refer to men only.

- *Workers aged 65 and over who are also pensioners:* Japan has much the largest group of working pensioners, but there are a significant number of people in the United States, Sweden and Canada who fall into this group.
- *Non-workers aged under 65 who have a pension:* There are a significant number of people who have retired early, or have been retired early, and have access to a pension. In Germany and Finland, people in receipt of disability pensions are counted here. In Italy, recipients of the (now abolished) “seniority” pension provision that gave benefits on the basis of years of contribution rather than age are counted and in Finland recipients of the early pension for the older unemployed. In Canada, the United Kingdom and the United States, recipients of (early) private or company pensions will be included.
- *Workers aged under 65 who also have a pension:* This group contains people who have retired from a career job with a pension from a previous employer and who continue to work, if only on a part-time basis. It also contains participants in partial pension schemes, such as operated until recently in Sweden, and such as are still to be found in Finland and, in a slightly different form, in Japan.
- *Recipients of unemployment benefits:* About half of men under 65 who are neither working nor drawing a pension are still attached to the labour force in so far as they are in receipt of unemployment benefits. Some of the older unemployed do return to work, but for many unemployment benefits act in much the same way as early retirement benefits. The number of older people in receipt of unemployment benefits is relatively large in the Netherlands, where unemployment benefits can be drawn by people dismissed above age 57½ until they reach pension age at 65, and in Germany, where an age pension can be drawn at 60 after one year of unemployment and where older people are eligible for extended unemployment benefits. It is also large in Finland, where unemployed people in their late fifties can pass from receipt of unemployment benefit to the “unemployment pension”.
- *Non-workers aged under 65 who are not otherwise accounted for:* There is a miscellaneous group in receipt of different kinds of transfer payments or supported by their own or other household resources. Often such transfers often provide “bridge” income until normal pensionable age. Means-tested benefits are important in the United Kingdom and Canada. Other private resources, including income from assets and property, are important in Canada and the United States. Disability benefits, which are elsewhere recorded as pensions, are counted here for Italy, the Netherlands and the United Kingdom. So, too, are the private benefits provided in Germany as part of company redundancy packages.

### Chart 3.1 **Work-retirement transitions for older men**

#### **3.2. The impact of labour market status on income**

46. The situation of people who have left work early is of particular interest. In Table **3.1**, we look at men aged 60 to 64 and shows that proportion of different sub-groups of this population that are in the lowest income quintile. The table is to be read in much the same way as earlier tables.

47. Unsurprisingly, those who have not yet stopped working, whether or not they have a pension, have the lowest risk of being in the lowest income quintile. With respect to people who have stopped

working and are drawing a pension, in some countries they are over-represented at the bottom of the income distribution and in other countries they are under-represented. Canada, Japan and Germany are clearly in the former group, Finland, Italy, Netherlands and Sweden are clearly in the latter.

48. The highest risk of having a low income can be found amongst those non-workers who receive neither a pension nor unemployment benefit. These people are usually relying on some kinds of transfer payment, but this transfer often fails to save them from having a low income.

**Table 3.1 Proportion of men aged 60 to 64 that are in the bottom income quintile, by retirement transition category**

49. A further comparison of early pensioners and people who continue to work in their early sixties is shown in Chart 3.2. Each bar in the chart shows the proportion of the relevant group that has an income that would place it into the appropriate quintile for the population 18 and over.

**Chart 3.2 Proportion of workers (without a pension) and early retirees (not at work, with a pension) in each income quintile**

50. Chart 3.2 shows that in Canada, Germany, Japan, the United Kingdom and the United States early retirees tend to be less well off than people who continue to work, *i.e.* more likely to be in the lower quintiles of the income distribution. However, in other countries, such as Finland, Italy and Sweden, although early retirees are not in the highest income groups, they are often better off than those who continue to work. In these countries, there might be strong incentives to retire early.

51. In Chart 3.3, we look at men who are in their late sixties and compares those who have retired with those who continue working whilst drawing a pension. Note that the charts are only for five countries – there were not enough working pensioners in the other countries to allow analysis.

**Chart 3.3. Proportion of pensioners who work and who do not work in each income quintile**

52. We can see that older people who combine a pension with continued employment are less likely to have incomes that put them into the lowest quintile of the adult population than are older people who retire and take a pension. They are more likely to have incomes that put them into the highest quintile – in other words, working pensioners are better off than non-working pensioners.

### **3.3. The possible affect of alternative retirement patterns**

53. In order to assess the impact of alternative work and retirement patterns on wellbeing, we performed a “pseudo micro-simulation”. This sought to show what would happen if other countries had an employment system such as in Japan – the top half of the Table – or Finland – the bottom half – and thus had a much higher, or much lower, level of employment among older people. All other attributes, both of the population and of individuals, remained as they were. The population investigated is the age range 55-69 – the years over which most transitions from work to retirement occur. Results are shown in Table 3.2.

**Table 3.2. Results of a “pseudo-simulation” where countries are assumed to have the work-retirement patterns of Japan or Finland**

54. Before commenting upon the outcome, we need to emphasise the limitations of the simulation method adopted. First, it takes no account of any labour supply incentives/disincentives in national

benefit systems. In some countries, were there alternative work-retirement patterns, some of those who are currently working pensioners might chose, instead, to be non-working pensioners. Second, it is based upon inflating components of the sample. Thus, in some countries, it increases substantially the number of working pensioners with low incomes. Accordingly,, for such countries, the result might be explicable in terms of the relative size of the poor among the elderly population rather than anything else.

55. Table 3.2 is to be read as follows. Canada is used as the example. The first three columns show the impact on mean income of alternative work-retirement patterns. They show that, with work-retirement patterns identical to those in Japan, the mean value of market incomes would have been nearly 16% higher. However, after benefits and tax have been taken into account, they would have been only just over 8% higher. The fourth to sixth columns show that, with work-retirement arrangements identical to those in Japan, income inequality in terms of market income would have been reduced by over 5%. However, after benefits and tax have been taken into account, there is no significant change.

56. It would seem that alternative patterns of retirement, and longer working would have a modest effect on the final incomes of older people in Finland, Germany, Italy and Netherlands, where early retirement is extensive, but almost no effect on the incomes of people in Sweden, where considerably more people work until normal retirement age. However, they would have little impact upon income inequality, except in Sweden, where the currently relatively small income difference would widen.

57. Applying the work-retirement arrangements of Finland produces much the same result. The countries in which earnings are important during the retirement transition show a relatively large reduction in market income. However, the change of disposable income is small.

58. From Table 3.2, we *could* suggest that the tax-benefit system seems to be “neutralising” the impact of “alternative” employment systems. Equally, we *could* suggest that people take account of the kind of work-retirement arrangements that prevail in the country where they live when they organise the mix of resources they need to maintain an adequate level of wellbeing in old age.

#### **4. How the mix of resources affects wellbeing**

##### ***4.1. The difference between recipients of means-tested benefits and private pensions***

59. Different countries have different retirement income systems. A public pension is available, directly or indirectly, for almost all older people. However, in some countries, public pensions are relatively low and a greater emphasis is placed upon means-testing and on benefits that come in to play only in the absence of other sources of income. Equally, in some countries, private pension systems are well developed and personal or occupational pensions contribute a substantial part of retirement income.

60. Generally, there seem to be two extremes within the retirement age population: recipients of means-tested benefit, who can be assumed to have rather low incomes, and recipients of private pensions, who can be assumed to have rather high incomes. Using public pension beneficiaries as a benchmark, we start by investigating the economic wellbeing of these categories of people. The extent of receipt of means-tested benefits and of private pensions among older people, and their relative importance to beneficiaries’ income, is shown in Table 4.1. The table refers to individuals, but the income in question might be received directly by the individual or by another member of the household, or by the household as a whole – as is usually the case with means-tested benefits. In some cases, sample sizes were too small to permit data to be analysed in a meaningful way.

**Table 4.1. Recipients of means-tested benefit and private pensions and the importance of these benefits**

61. The table shows that, in general, the incidence of receipt of means-tested benefits increases with age. This is, no doubt, associated with widowhood, as well as the fact that the “older old” have accrued less substantial retirement pensions than the “younger old” – a cohort effect. It also shows that receipt is higher in Canada, Sweden and the UK than elsewhere. However, we can also see that, in most countries, the importance of means-tested benefits to total income decreases, or remains unchanged, by age. This is particularly the case in Canada.

62. With respect to private pensions, receipt is much lower in Germany, Italy, Japan, and Finland, where almost all retirement provision is through the state system. In the other countries, where the private pension is more important, they provide some 35% or more of recipients’ retirement incomes.

63. The disposable income of means-tested benefit recipients – or, rather, people in households where there is a recipient of means tested benefits – is described in Table 4.2. Most people start to receive an age pension from the state at 65, so, for people above this age, we could regard total disposable income as being, largely, the sum of means-tested benefit and a public age pension.

**Table 4.2. Mean disposable income of recipients of means-tested benefits**

64. Table 4.2 shows that recipients of means-tested benefit are, indeed, substantially less well off than other older people. Taking their income from all sources together, they are, on average, about two thirds as well off as all older people, except in the USA. Reflecting the fact that the average income of the “older old” is much lower than that of the “younger old”, the relative income level of the older recipients of means tested benefit is higher than that of the younger ones.

65. Chart 4.1 compares recipients of means tested benefits with recipients of public pensions in terms of their positions in the income distribution. Since almost all people in the age group are recipients of public pensions, the two groups are not mutually exclusive. Again, it should be noted that sample sizes were too small to permit the inclusion of all countries.

**Chart 4.1. Proportion of recipients of means-tested benefits and public pensions by income quintile**

66. Chart 4.1 is to be read in the same way as Chart 3.2 and Chart 3.3. From it, we can see that recipients of means-tested benefit are much more likely to be found at the bottom end of the income distribution and are scarcely, if ever, to be found at the middle and higher end of the distribution. By contrast, except in the UK, public pension beneficiaries are concentrated in the second quintile. In other words, receipt of the latter benefit generally means that the person concerned is not at the very bottom of the income distribution.

67. The situation of people who enjoy private pension income is shown in Table 4.3 and Chart 4.2. Table 4.3 is similar in design to Table 4.2, and Chart 4.2 is similar to Chart 4.1.

**Table 4.3. Mean disposable income of private pension beneficiaries**

68. From Table 4.3, we can see that recipients of private pensions are better off than are other older people, particularly in those countries – Finland, Germany, Italy, and Japan – in which private pension coverage is very limited.

### Chart 4.2. Proportion of recipients of private pensions and public pensions by income quintile

69. Equally, from Chart 4.2 we can see that recipients of private pensions are less likely to be found at the bottom of the income distribution and more likely to be towards the upper part of the income distribution. Again, this is particularly likely to be the case in Finland, Italy, Japan, and Germany. Nevertheless, recipients of private pensions are spread fairly evenly over the income distribution, apart from the bottom quintile. They are not concentrated in the top quintiles, even if it is the better-off people who are most likely to have private pensions.

#### 4.2. The relation between income package and labour market status

70. We took the analysis further by looking at men in different age groups and of different labour market statuses to see the importance to them of their “own” income according to its source. In particular, we were interested in the importance of their “own” private pensions and their “own” public pensions. The results are given in Table 4.4. The Table shows, first the proportion of people receiving the relevant pension, and second the value of that pension. In each case, the value of the pension is expressed as a fraction of the average disposable income of all people of working age. Thus, in Canada, 42% of non working men aged 55-59 are beneficiaries of a public pension, and 73% are beneficiaries of a private pension. These pensions, gross, were worth, respectively 11 and 57% of the average disposable income of all working age people.

71. From Table 4.4, we can see the role of private pensions, and in some cases of partial pensions, during the transition from work to retirement. We can see that in Canada, the Netherlands, Sweden, the UK and the US, private pensions play an important role as “bridging” income, covering the years until early retirees (non-working pensioners) reach the normal age for receipt of a public pension. Also, we can see that people continuing to work beyond the normal retirement age are more likely to rely only on a public pension, and not on a public together with a private pension, than are non-working pensioners of the same age. The difference is most marked in Canada, Japan, and the US – countries where working pensioners are more common.

Table 4.4. Combination of private and public pension for early retirees and normal retirees

## 5. How living arrangements affect wellbeing

### 5.1. The different ways in which older people live

72. To understand the wellbeing of older people, it is necessary to know not only their labour market status and the income sources upon which they depend, but also the way in which they live. As people age, many change their living arrangements, and these changes can substantially affect how well off they are. Some changes, such as the death of a spouse, are unavoidable. Even so, living arrangements in old age are not the same across all countries. Those in Japan and Italy differ remarkably from those in the other countries in this study.

73. An easy way in which we can decide how people’s living arrangements change over their lives is to show the size of households. This is done in Chart 5.1. We can see that, on reaching adulthood, some people are living by themselves, some are cohabiting, some have children and some are living with their parents. There is considerable heterogeneity in household size. As people move into their thirties, more are cohabiting and more have children, but fewer live with their parents. As people reach their later

fifties, their children have become adults and moved out. Household sizes become smaller, and two person households predominate. Subsequently, and as one of the couple dies, single households become increasingly important. Comparing Italy with most other countries, we can see that people, there, live longer in three and four person household. In addition, very old people in Italy are much more likely to live in a household with five or more persons. Japan is yet more different. We see an even greater share of people in their late thirties and early forties living in households containing at least five people. Yet more dramatic is the number of old people who live in households with five or more people.

#### **Chart 5.1. Household size by person's age**

74. We can look in more detail at some of what is happening in households in Table 5.1. In Italy, about two thirds of people in their late twenties are living with their parents, and in Japan the proportion is only slightly less. Elsewhere, the proportion rarely exceeds 10%. This reflects the tendency for children in both countries to remain at home. In the case of Italy, it is also argued that high youth unemployment rates – along with the relative absence of social security benefits other than pensions – means that young people who are unsuccessful in entering the labour market must rely on intra-familial transfers. In the case of Japan, housing costs are high, and young people can enjoy a higher living standard if they stay living in their parents' house – which they often do until they marry.

#### **Table 5.1. Proportion of young adults living with their parents**

75. We can see more when we look further at Chart 5.1. In Italy, household size diminishes as a person passes the age of about fifty. In Japan, however, this does not happen. Beyond the age of sixty, there an increase in the proportion of households made up of five or more persons. That might be because, in Japan, retirees often move in with their children, though it may also represent older cohorts who always stayed with their children. Table 5.2 shows that the same process occurs, but at a much later age, and to a much lesser extent, in most other countries. In most countries, a proportion of very old, single people live with their children. In Japan, and to a somewhat lesser extent Italy, many more do so. Moreover, in Japan a significant minority of those older people living with adult children are still part of a couple. They have not waited until the death of the spouse before changing their housing arrangements.

#### **Table 5.2. Proportion of older people by household type**

76. Living in larger households might be thought to be caused by older people otherwise having low incomes and, thus, needing to rely upon their from working children. Reality is more complicated. In the case of Japan, household size reflects a complex, inter-generational support system – backed by implicit inheritance rules – in a country where house prices are high, affordable accommodation is often small and/or distant from the place of work, and care-giving takes place within the family.<sup>12</sup>

### **5.2. The special situation of older women**

77. The large majority of old, single people are women whose husbands have died. Many of them live alone, some, as has been shown above, move in with one of their adult children. We can see the consequences for wellbeing of the two forms of living in Table 5.3, which also shows the situation of old people who are still in a couple. The table refers to people aged 75 and presents the share of people in each sub-group who have incomes that put them into the bottom quintile. It is to be read in the same way as Table 3.1.

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12. The introduction of long-term care insurance could change this.

**Table 5.3. Proportion of older women in the lowest income quintile, by living arrangements**

78. Table 5.3 shows that, although low incomes are prevalent among all the older old, they are dramatically more prevalent among old women living alone. Where the husband is still alive, the incidence of low incomes is lower than average, at least in six countries. It is higher in the United Kingdom, the Netherlands and Japan.

79. Where an old single person lives with an adult child, or is otherwise part of a multigenerational household (*i.e.* is in a household of which another person is the head), she is substantially less likely to be in the lowest quintile of the income distribution. Indeed, in most countries, older people living in such households are also likely to be better off than those in the working-age population as a whole. We should note that sample numbers for people in multigenerational family are often small, so the results have to be treated with some caution. However, sample numbers are quite large in the two countries in which multigenerational families are important – Japan and Italy.

80. Some explanation of what causes the fall in income that often comes with widowhood is given by Table 5.4 in which we compares the situation of widows who are living alone with women of the same age who are living with a spouse. This comparison gives an indication of how income composition might change after the death of a husband and of how this, in turn, affects the wellbeing of the widow. Note, as always, that this is only a general indication, since the data do not track particular individuals over time. Moreover, there is evidence from panel data (Disney and Whitehouse, 2001) that widows who are relatively worse off tend to have had lower incomes before the death of their spouse.

81. Table 5.4 is to be read as follows. Again Canada is used as the example. The first column shows that, in terms of adjusted disposable income, and after loosing the husband's "own" income and the economies of scale of living together, a woman who becomes widowed, and is in the age group 65-74, experiences a reduction in wellbeing of some 32%. The following six columns show how each income source attribute to this reduction, and the last column shows the reduction of income due to loosing economies of scale.

**Table 5.4. Difference between the disposable income of widows living alone and couples in two-person households**

82. In constructing the table, we assumed, as always, that any income, whoever the original recipient was, was shared between the couple. Thus, the widow enjoys a somewhat higher income, because her public pension benefits increase, experiences a somewhat lower income, because she loses private pension benefits, has a small increase in income, because she receives other public benefits and because she pays lower taxes on the new total income.

83. From Table 5.4, we can see that the main cause of the lower living standards is the absence of household economies of scale. This is 29% in all countries, an amount that is a mechanical result of the equivalence scale that is used. The fact that the loss of scale economies is the principal reason for a fall in living standards is an awkward one for analysts, but the phenomena is real and cannot be ignored.

84. For women in the age range 65-74, becoming widowed leads to a fall in wellbeing of between a fifth and one third, the only exception being Germany. For women aged 75 and over, becoming widowed has a similar impact in most countries, but this time the fall in the Netherlands and Sweden is smaller. In Japan, the loss of (the husband's) working income is also important.

85. In some countries, such as Canada, Germany, Italy, the Netherlands and the UK, the workings of the public pension system, and its provision of survivors benefits, boost the cash value of that source of income. However, in countries where private pensions are important, such as Canada, the Netherlands, the

UK (and to a much lesser extent Sweden and the USA), because these are mainly built up by men, widowhood can mean this source of income falls away. In Sweden and the UK, means-tested benefits is an important way in which some of the income loss that widowhood brings is made up.

86. The impact of the tax system is positive rather than negative in most cases. In other words, in most countries the tax burden on widows is less than that on couples.

87. Table 5.5 shows the effect on women's well being of their having their "own" pension and, thus, the effect of widowhood and of divorce. The table is to be read as follows, using Finland as the example. The first two columns show the average of own public or private pension benefits for married couple expressed as a percentage of gross earnings of average production workers (APW). The third column shows the average amount of those benefits per capita, and this column can be used as benchmark to evaluate the situation of benefit level of single (never married), divorced and widowed women. On average, the Finnish public pension scheme provides 47% of APW earnings for each person in marriage. Never-married and widowed women receive a slightly lower level of public pension, whilst divorced women receive the lowest level, equal to 37% of APW earnings.

**Table 5.5. Mean value of "own" pensions for people aged 65 and above**

88. More generally, we can see that the average level of public pensions for widowed women is higher than for married couples (on a per capita basis), except Finland and Japan. Equally, public pensions for divorced women are lower than for widowed women in most of those countries where these types of women are identifiable. By contrast, private pensions for widows are lower – per capita – than for married couple.

### **5.3. The possible effect of alternative living arrangements**

89. In order to illustrate the possible effects of alternative household structures, we carried out a second "pseudo micro-simulation".<sup>13</sup> This shows what would happen if other countries were assumed to have the living arrangements of Japan – with large households – or Finland – where most older people are in one- or two-person households. All other attributes of the population and the individuals were assumed to remain unchanged. This is an implausible assumption, since changing living arrangements would, almost certainly, be highly correlated with other characteristics. However, the example is not intended to be a realistic estimate of what might actually happen. It is intended only to illustrate the possible size and direction of effects and the interactions with the tax and transfer system. The results are shown in Table 5.6.

**Table 5.6. Results from a "pseudo micro-simulation" where countries are assumed to have the living arrangements of Japan or Finland**

90. Table 5.6 refers only to people in the age range 65-79 – the years over which most changes in living arrangements occur. The table is to be read as follows. Again Canada is used as the example. The first three columns show the impact on mean income. They show that, with living arrangements identical to those in Japan, the mean value of market incomes would have been nearly 38% higher. However, after benefits and tax have been taken into account, they would have been only just over 13% higher. The fourth to sixth columns show that, with living arrangements identical to those in Japan, income inequality in terms of market income would have been reduced by over 13%. However, after benefits and tax have

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13. Again, in this simulation, individuals were simply re-weighted such that there is the same proportion of individuals in various categories of household living arrangements as in the reference country.

been taken into account, there is no significant change. Indeed, if anything, there is a small increase in inequality.

91. From Table 5.6, we can see that, if living arrangements were as in Japan, the mean incomes of older people would be considerably higher than at present in Canada, Finland, Germany and the United Kingdom, but would be little different in the Netherlands and Sweden. However, income inequality would be little different, except in Germany where it would be reduced substantially.

92. Most of the factors that produced higher market incomes and higher inequality with respect to market incomes, are reduced by the operation of the tax-benefit systems of the various countries, and particularly by the benefit systems. This suggests that the tax-benefit systems *might* serve a function similar to that of family support systems.

93. Similar results – but in the opposite direction and on a more modest scale – would occur if the United Kingdom had the same living arrangements as Finland – a country with rather fewer, large older households.

## 6. Other determinants of wellbeing – wealth and benefit in kind

### 6.1. *The importance of market wealth*<sup>14</sup>

94. For many people, wealth is an important resource for retirement and buffer against unexpected developments. Market wealth conventionally includes both financial and housing wealth. The former is normally more liquid than the latter, and includes money in bank accounts as well as in the form of equities or bonds. However, the latter provides a security against which money can be borrowed and even, through such instruments as reverse mortgages, enables an income stream to be acquired.

95. In Table 6.1, we show the proportion of “pre-retirement” and “post-retirement households” with financial wealth and housing wealth, by income quintile. The pre-retirement group typically includes people from about age in their mid fifties; the post retirement group, people in their late sixties – although the American data refer to people in their early seventies. From the table, we can see that most households at all income levels have at least some financial wealth. Except for those in lower income groups in Italy and the United States, and in lower and middle income groups in the United Kingdom, over 90% of households in both the pre-retirement and post-retirement-age ranges reported some financial wealth in the mid 1990s.

**Table 6.1. Proportion of households reporting market wealth**

96. The incidence of housing wealth is lower than that of financial wealth, and such wealth is more concentrated in higher income groups. Nevertheless, in most countries, 70% or more of older couples in the lowest income quintile have at least some housing wealth. The proportion is somewhat lower in the Netherlands and Germany, and it is somewhat higher in Canada, Japan and the United States.

97. In Table 6.2, we have sought to express the financial and housing wealth of households as a percentage of their gross annual income in the mid-1990s. Financial wealth is relatively small, being less than a year’s gross income in many cases. However, older households have larger financial wealth in Italy,

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14. The following paragraphs update earlier work reported in Disney *et al.* (1998). A fuller description can be found there.

the United States, the United Kingdom and Japan, and the relative financial wealth of households that are above retirement age is greater than that of households below retirement age. Housing wealth is, not surprisingly, greater than financial wealth, being worth, in some cases three or four times gross annual income. It is lower than this in the Netherlands and Sweden, but much higher in Japan. This last finding reflects such factors as the high costs of housing in that country, the high value placed on home ownership, and retirement packages – especially the lump-sum benefit paid at on mandatory retirement – that allow people to pay off their mortgages.

**Table 6.2. Ratio of market wealth to gross income**

98. Financial wealth itself produces income in the form of interest payments and dividends. This income flow has already been taken into account in calculations of individual and household wellbeing. However, so far we have ignored the notional income flow from housing wealth. Table 6.3 shows the imputed rent from owner occupation housing wealth as a percentage of spending of each household. Taking Finland as an example, we can see that, if account is taken of imputed rents, the consumption of an older single person is increased by over 40%. As Table 6.1 has shown, relatively few people of any age have housing wealth in Germany and the Netherlands, and this is why the average imputed rent is relatively low in those countries.

99. In most countries, the value of imputed rent is higher for older households than for younger ones, reflecting the fact that more older people own their own houses. Nevertheless, we should be cautious in suggesting that the higher values of imputed rent really do mean that full home ownership does enhance the wellbeing of older people by the amount suggested. It is certainly possible that older people do not want to live in houses as large as they do – they have been left in them when children have moved away and, sometimes, when their spouse has died.

**Table 6.3. Estimated rental value of owned home**

## ***6.2. The importance of in-kind benefits***

100. In this study of the wellbeing of older people, we have looked mainly at the income they receive. We have looked at income as provided by the state, but we have not looked at benefits in kind from that same source. One reason for this is that the micro-data sets we used contain little or no information about such benefits. Even when they do so, they do not do so in a manner consistent with one another.

101. In-kind benefits from the state can, however, be important. We try to show this using macro-data for the nine countries. This is done in Table 6.4 Here, public expenditure on cash benefits for older people is set as 100. The value of publicly provided services to the elderly and disabled – primarily day centres, sheltered accommodation and domestic help services – is shown in the second column. Thus, in Finland, 13% of the value of expenditures on pension and other cash benefits for the old is spent on the provision of such services. The third column gives some indication of the value of public health spending for older people, although results are at best approximations and should be treated with care. Nevertheless, it seems that in Finland older people benefit from public health care worth, on average, about one third of their public pension. Of course, this is an average across all older people and all years of old age. Actual health utilisation will be much more “lumpy” and concentrated in the last years, or even months, of life. The final column sums up all in-kind benefits for the countries for which approximately full data is available. For these six countries, public in-kind benefits seem to be worth between a half and three quarters of public cash benefits. Their value is highest in Japan and Sweden, although in the first country it is the consequence of extensive health care provision and in the second country of housing and domiciliary care

service provision.<sup>15</sup> Differences in the service mix are also apparent for the other countries and reflect very different cultures and institutions.

Table 6.4. **Relative importance of benefits in kind**

## 7. Conclusions and policy implications

102. On the basis of the analysis we have carried out, it is possible to say that, by the mid 1990s, older people had, on average achieved a reasonable level of wellbeing. However, in the intervening years, many governments have made reforms to their retirement income systems and it is necessary to consider the implications of these.

103. Most reforms were driven by the need to contain the costs of public pension systems in the face of societal ageing. These reforms have sought to reduce the generosity of public pensions, to reduce opportunities for early retirement and to encourage the take up of private pensions. If these measures are effective, they might well change the picture of incomes in old age that has been presented in this paper. They might well result in a different mix of income sources, with a greater reliance on earnings and on personal, company or occupational pensions. They might also result in higher levels of wellbeing, if diversified packages bring the benefits often suggested. They might, however, bring lower levels of wellbeing if people are left without the ability to access one income source, and no opportunity to take advantage of another, or if people are forced back onto means-tested benefits. In this respect, a key to ensuring that reforms to pension systems do go hand in hand with increased wellbeing is an improvement in macro-economic performance. Only then are there likely to be sufficient job opportunities for older people and, thus, the possibility for labour income to play a more important role in the income package of older people, particularly those who still below the “normal” pension age.

104. One consequence of the extension of private pensions – at least where these are taken out on a voluntary basis – will be a reduction in the effective disposable income of younger people, since they will have to pay contributions to the relevant pension schemes.<sup>16</sup> This reduction will have implications for replacement rates, whether actual or effective. Replacement rates will appear to rise, not because of a change in the value of the numerator but because of a change in the value of the denominator. However, such a change might be offset if private pensions are subject to tax and retirees face a higher tax burden than they do at present.

105. Our analysis of transitions from work to retirement illustrated, once again, the variety of routes out of employment that people can take. Because of the existence of these many routes into early retirement, policies to increase the effective retirement age that concentrate on one retirement programme alone are unlikely to be as successful as the governments concerned might wish. Apparently different programmes and provisions seem to act as close substitutes one for the other. The small improvement in the employment rates of older people observed in some countries in the last two or three years are not likely to be attributable to reforms made to public pension schemes that seek to shut down or restrict early retirement opportunities. They are more likely to be attributable to the very buoyant labour markets of the countries concerned, whereby sustained good economic performance has “trickled” down and led to a greater demand for labour and even for older workers.

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15. In the case of Japan, some of the “health” expenditure might actually relate to services closer to long-term care. In this case, it should better have been placed in column two.

16. Such contributions are normally treated as expenditure, not as a charge reducing disposable income.

106. In reforming retirement income systems, policy makers will need to take account of the situation in old age of those who have been unable to work for all, or part, of their adult lives, and who are unable to accumulate pensions, or sufficient pensions in their own right. We pointed to the position of older women. Whilst, in the future, a much greater proportion of the female population will have had a substantial work history, women still bear much of the burden of child rearing and so experience some career interruption and, possibly, a slowing down of their career and earnings progression. Moreover, the incidence of divorce has been rising, and many more people will be entering old age with at least “moral” claims on the some of the pension rights accumulated by a previous partner. Legislators are only beginning to take account of this, but this paper illustrates how, in the absence of adequate arrangements, and where pension rights are not assigned on an individual basis, divorced older women suffer economically.

107. In addition, the fact that labour markets are becoming more “flexible” and that “labour market flexibility” is being promoted by policy makers, means that more and more people are likely to experience “non-standard” careers. Such people often cannot accumulate pensions in the way they could in the past. Thus, efforts to improve “pension flexibility”, and make pensions more transferable and more appropriate for people who experience frequent job changes, are also called for. We might also add that labour market “flexibility” not only involves changes of employer, changes of employment status, or interruptions to work between one employment and another: it can also mean a full, early cessation of work – in other words, early retirement. Where such early retirement is involuntary, it, too, can have short-term and, more importantly, long-term consequences for the wellbeing of the people affected. Lastly, the reforms to pension systems that result in greater emphasis being laid upon money purchase or defined contribution schemes also leave more people faced with planning how to use their accumulated savings. If they underestimate their remaining length of life, they could find their retirement income depleted prematurely, in which case, they will become dependent upon some form of public assistance.

108. By their construction, defined contribution schemes, and the actuarially neutral schemes that place “a better link between contributions and benefits”, tend to increase the degree of inequality experienced within the older age or retirement population. They do this even if they do not lead to a greater proportion of the old having “low” incomes. The move to greater emphasis on defined contribution schemes has gone hand in hand with a move towards greater emphasis on private pensions. Policy makers have a responsibility to examine this potential consequence of their actions, too.

109. Another change that has been occurring is in the living arrangements of older people. The incidence of multigenerational families is in decline. For instance, the number of three generation households in Japan has declined by 10% over the past decade. Some of this, and not only in Japan but across the OECD world, is a consequence of industrialisation and people moving away from their roots as they engage in formal employment. Some of it can be attributed to family breakdown – as consequence of an increasing divorce. Much of it, perhaps, can be attributed to pension scheme maturity – older people now have the resources to live alone. Although, with the falling away of scale economies, their material living standard might not improve, they, and their children, might benefit from the greater independence such living arrangements bring.

110. On the other hand, the decline of multigenerational families also means that older people are more likely to be dependent on the formal care sector as they grow frail. The state, and particularly the local state – provinces, counties and municipalities – already has substantial responsibilities in this respect, but providing for the frail elderly is one of the greatest challenges facing social policy makers today. It raises questions about the form in which that care should be provided – domiciliary or residential and, if the latter, whether semi-sheltered, sheltered or hospital – and what the contribution of old people themselves should be to the costs that are incurred.

111. We have shown that some older people have substantial housing wealth, and this might be associated with accommodation that is beyond their needs, or even beyond their ability to maintain. On the assumption that it is reasonable for older people to pay a share of their costs, governments should consider encouraging the development of alternative housing structures, at a reasonable price, into which people can move and, thereby, realise capital gains. For those who do not need to move, attention should be paid to the promotion of reverse mortgage facilities, but facilities that do not suffer from the current deficiencies of private annuity contracts – *i.e.*, contracts that assume above average longevity.

112. Lastly, we would argue for more and better data. The LIS data set has proved rich, but almost unavoidably, it is dated. The exercise we have undertaken deserves repetition using data from closer to the present. As data collection and editing techniques improve, such repetition ought to be possible and when it is, the data should be available much sooner after it has been collected. We indicated that the questionnaires themselves might also need adoption to take account of private pensions contributions to these. We have also pointed to the relative paucity of wealth data available to researchers, although we are aware how important assets can be in determining how people do or can live. However, we have shown the benefits that can be gained from using standardised data. We would see exercises such as we have performed as invaluable to the work being undertaken by the Social Protection Committee of the European Union under the name of “open co-ordination” and involving the “benchmarking” of member country’s performance with respect to wellbeing.<sup>17</sup>

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17. For a fuller description of the open method with respect to pensions policy see, CEU 2001.

## ANNEX 1. DATA, CONCEPTS, AND METHODS

### Data Sets

113. For the income analysis, we used mainly the Luxembourg Income Study (LIS). This is a data set that brings together the income surveys of some 25 countries and standardises the main variables. It includes eight of the nine countries in this study, but not Japan. In most cases, national statistical offices collected the original data. However, the LIS data set is the responsibility of a not-for-profit organisation that is not directly answerable to any one of the statistical offices. These merely supply basic data files.

114. For Japan, data for the tables and charts was taken from Research Expenditure for Health Science (2002) that used the Income Redistribution Survey. The latter data set is compatible with LIS data set, since it, too, provides detailed information on earnings, social security benefits, private pensions and other income components and on taxes, and social security contributions.

115. We also use the OECD Wealth Data set to investigate the alternative resources during retirement. This data set is originally compiled by Disney *et al.* (1998) in co-operation with national experts. The data set for several countries (Finland, Italy, Japan, and UK) was renewed and extended for this paper.

116. The LIS data provides for extensive analysis of the income situation at one point in time. For the countries it covers, the data normally refers to the mid-1990s. The Japanese data are from 1995. Whilst the LIS database does allow earlier years to be analysed, there is not a full consistency of definitions. The Wealth Data set also refers to a single point in time, again the mid or early 1990s.

117. Box 1 (overleaf) describes the national data sources that we used to compile the data sets that have been analysed.

### Individuals are used as the basis of analysis

118. Income surveys usually present their results in terms of household incomes. Here, however, much of the analysis is conducted with respect to the income of an individual, and in this respect, the analysis is novel. Most studies of the incomes of older people – including those carried out by the OECD in the past (for example, “Resources During Retirement”) – look at households headed by an older person. They do not allow the investigation of older people who live as “subordinates” – for example, with their adult children, where one of the latter or his/her spouse is the “household head”. Including in the analysis such older people is important, since the paper includes countries where such living arrangements are not unusual. The income data sets do allow individual to be investigated regardless of their situation in the household.

119. An individual’s income can be understood in one of two ways. At one level, it is the share of household income, regardless of source, that the individual enjoys. In the analysis carried out here, it is assumed that household income is pooled and then shared out. Moreover, the sharing is equal: in other words, total household income is simply divided by the number of members of the household. At a more

refined level, individual income, defined as before, is broken down into its constituent parts. These comprise the incomes received by the individual from outside the household and the incomes received as a transfer from within the household as part of the “pooling” and “sharing process”.

### Box 1. Surveys used for the analysis

Country	(1) Income data sets (all in LIS except for Japan)		(2) OECD Wealth Data	
	Survey	Year used for the analysis	Survey	Year used for the analysis
Canada	Survey of Consumer Finances	1994	n/a	n/a
Finland	Income Distribution Survey	1995	Wealth Study	1994
Germany	German Socio-economic Panel Study	1994	German Income and Expenditure Survey <sup>2)</sup>	1993
Italy	Survey of Household Incomes and Wealth	1995	Survey of Household Income and Wealth	1995
Japan	Income Redistribution Survey <sup>1)</sup>	1995	National Survey of Family Income and Expenditure	1994
Netherlands	Socio-economic Panel	1994	Socio-economic Panel	1990
Sweden	Income Distribution Survey	1995	Income Distribution Survey	1995
United Kingdom	The Family Expenditure Survey	1995	The Family Resources Survey	1995/96
United States	Current Population Survey	1994	i) Health and Retirement Survey	1992
			ii) Assets and Health Dynamics among the Oldest Old	1993

#### Notes:

- 1) The survey includes households from the “new” Federal States.
- 2) In the case of the United States, two different surveys are used for the two age groups.
- 3) Japan is not included in the Luxembourg Income Study because of regulations in the national statistics law. Data has been obtained from Expenditure For Health Science (2002).

120. To provide a complete picture of incomes on an individual basis, information on a person’s “own” incomes – that which comes into the household but to the individual him/herself – is required. However, this is seldom available in a household-based data set and sometimes the concept of “own income” it is not even appropriate. In terms of availability, the LIS data set did not automatically permit the identification of individual self-employment income. However, it could be approximated. The procedure whereby this was done is described in Endnote 1, below. In terms of appropriateness, income such as means-tested benefits cannot be attached directly to an individual, even if he/she is the immediate recipient. This is because the level of such benefits is determined in relation to household resources and some sharing is assumed.

121. The combination of unavailability and inappropriateness means that an individual’s total income is made up of (i) identifiable “own income”, (ii) his/her shares of income paid to the household and (iii) his/her share of income that cannot be attributed since it is recorded only as household income. On top of this, where an individual’s identifiable income exceeds his/her share of total household income, it is assumed that that individual makes transfers to other household members – and vice versa. In such cases, the size of these transfers can be, and is, identified.

122. Incomes can be described in both gross and net terms – in other words, before and after tax and other statutory (mainly social insurance) deductions. In most of the analysis carried out in this chapter, the interest is in “after tax”, or “disposable” income. The concern is with what individuals have available to consume goods and services. It is recognised that in some countries, certain services are provided largely free of charge by the state, and that this provision can be reflected in different – although rarely age-

specific – levels of tax and social insurance contribution. One of the countries in the study – the United States – stands out as different in so far as individuals are much more likely to have to meet a share of health-care costs from their own resources and tend to receive less from the state. This means that, at one level, “effective disposable income” might not always be directly comparable, either across countries or – if such costs are incurred disproportionately by older people – within countries.

### Measures of economic well-being – adjusting for household economies of scale

123. Because households are of different sizes, household incomes are normally standardised. The way by which this is done is by reference to an “equivalence scale”. The equivalence scale takes account not only of the number of people in the household but also of the economies of scale that are associated with living together and the way in which fixed costs can be shared. Successive members of the household require progressively less to ensure that the living standard of each – assuming sharing – is the equivalent of the living standard achieved by the first member.

124. Taking account of economies of scale means that the income of a household of more than one member enables that household to enjoy a living standard that is higher than household income as measured in currency units alone would suggest. Effectively, household income is “inflated”. Taken together with the pooling and sharing described above, this means that the wellbeing of the individual is measured in terms of his/her share of the “inflated” income of the household. Only in the case of a one-person household is income in currency terms the same as well being as indicated by the effective income calculated by taking account of scale economies. Thus, individual incomes comprise a further, identifiable element, the addition to well being generated by joint living arrangements.

125. A considerable number of equivalence scales have been generated by social economists and/or are implied by the rules of benefit systems.<sup>18</sup> In the analysis carried out, the equivalence scale frequently employed by the OECD is used. This equivalence scale assumes that each person in a multi-person household would enjoy the same wellbeing as a person living alone if total household income were the income of the latter person multiplied by the square root of the number of people in the household.

126. More concretely, to achieve a given level of wellbeing, a four person household would require a total income twice as large as that of a single person household, and a two person household would require an income 1.41 times as large as that of a single household. Using this equivalence scale to inflate household incomes to reflect scale economies would mean that the income of a four-person household would be increased by 50% and that of a two-person household by about 29%.

127. More formally, the economic wellbeing (W), or “adjusted” income is defined as disposable income (D) divided by the square root of household size (S)

$$W = D/S^{\alpha}$$

whereby the term  $S^{\alpha}$  is the equivalence scale. In the analysis we carried out the value of  $\alpha$  is 0.5 (*i.e.*  $S^{0.5}$ ).

128. Actual levels of well-being calculated through standardising income to take account of household size and composition can differ depending upon the equivalence scale used. Different scales attach different weights to additional household members and can even place different weights on people according to their age. It has been argued that older people have greater needs than children, and that a

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18. See Atkinson, Rainwater, and Smeeding (1995), pp. 18-21.

higher weight should be attached to additional people in a household of older people than in one of adults where addition is a partner or spouse or an additional child. Accordingly, tests were made with alternative equivalence scales – alternative values of  $\alpha$  – to see so far they showed different levels of inequality and lead to different shares of the population below and above income levels that were set by reference to points in the income distribution. Details are given in Endnote 2. The tests suggested that, unless an additional person was given a very high weight – in other words, unless economies of scale were very limited, and so the value of  $\alpha$  set very high – the measured level of income of income inequality and incidence of low incomes did not change dramatically from that generated by the scale actually chosen.

129. Incomes, having been inflated to take account of economies of scale are described in this paper as “adjusted” incomes. Adjusted incomes can, of course be either gross incomes or, more usually, “adjusted disposable incomes”. Adjusted disposable income is taken to be synonymous with well-being.

#### Endnote 1: Algorithm for calculation of “own” self-employed income

130. In the LIS data sets, no information is available on “own” income from self-employment. Thus, we calculated a range of possible values me using followed algorithm:

$$\begin{aligned} \text{Min: } & \text{SEI} / \text{D6} * \text{LF\_DUM} \\ \text{Max: } & \text{SEI} * \text{SE\_DUM} * \text{NE\_DUM} \end{aligned}$$

**D6:** Number of Earners in the *household*

**SEI:** *Household* income from self-employment

**LF\_DUM:** *Individual* level labour force status dummy. If the individual is working, LF\_DUM = 1, if not LF\_DUM = 0.

**SE\_DUM:** *Individual* level self-employed status dummy. If the individual is self-employed, SE\_DUM = 1, if not SE\_DUM = 0.

**NE\_DUM:** *Individual* level non-employee status dummy. If the individual’s earnings as an employee are equal to zero, NE\_DUM = 1, if not NE\_DUM = 0.

131. Here is an example. Let us assume that there are four persons (P1, P2, P3, and P4) in a household. P1 is not working. P2 is a self-employed. P3 is working as a part-time employee and is also working as a self-employed. P4 is an employee. We cannot observe the actual amount of the “own” individual self-employed income from the LIS data set. However, let us assume that P2 earns \$60 from self-employment and P3 earns \$30 from self-employment. The observed household income from self-employment is \$90 and the value of D6 is 3. Using our algorithm, possible values for “own” self-employed incomes are shown in the last two columns of the following table.

	Unobserved actual labour force status	Unobserved actual “own” income from self-employment	Observed wage (= “own” gross wage)	LF_DUM	SE_DUM	NE_DUM	D6	SEI	Min	Max
P1	Not working	0\$	0\$	0	0	1	3	90\$	0	0
P2	Working as self-employed	50\$	0\$	1	1	1			30\$	90\$
P3	Working as self-employed and employee	40\$	20\$	1	1 <u>or</u> 0	0			30\$	30\$
P4	Working as employee	0\$	50\$	1	0	0			0	0

132. Using our algorithm for LIS data sets, we found that, in fact, there is no substantial difference between the maximum and minimum value. We also confirmed that this is a good approximation of the individual self-employed income with Japanese data, in which the variable of individual self-employed income is available.

133. For the purpose of calculation of “own” self-employment income, we always used the minimum value generated.

*Note 1:* We assume there is no time lag between labour force status and income variables.

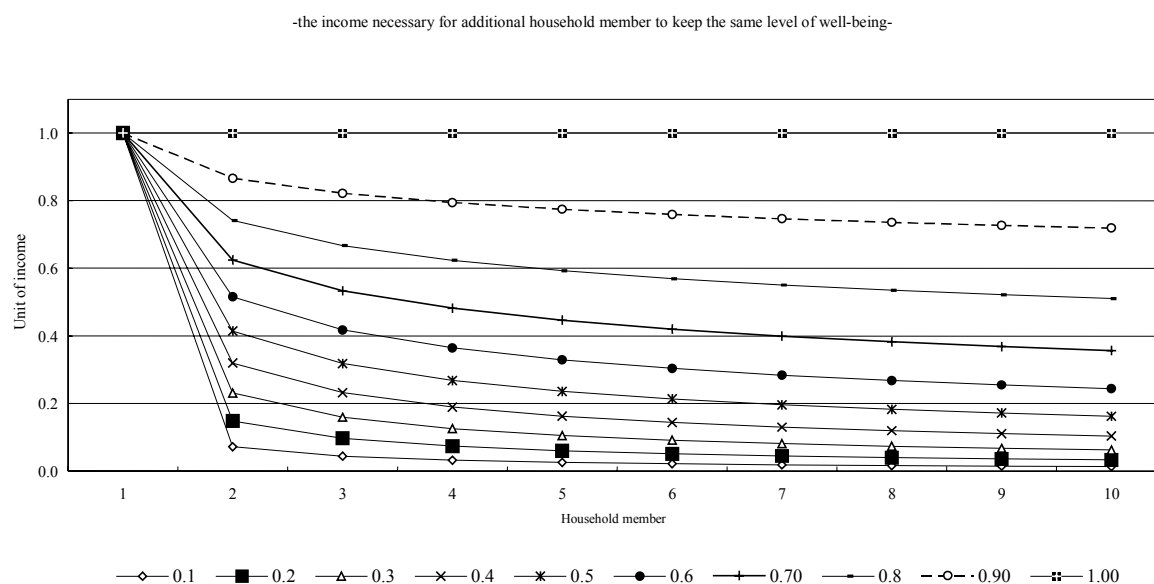
*Note 2:* We always give priority to employment over self-employment.

## Endnote 2: Sensitivity tests for different equivalence scales

134. The sensitivity analysis was conducted with reference to Gini coefficients and “low” and “middle-upper” income rates, both of which are frequently used as summary indicators for measuring economic wellbeing in a comparative context.

135. Chart A1 shows that the necessary income for one additional household member to keep same level of well being. Taking as an example an  $\alpha$  of 0.6, an additional 0.5 income units will be needed for the second household member. It means that for a two person (or couple) household, 1.5 income units will guarantee the same level of economic well being that one income unit guarantees for a one person (single) household. The third household member will need an additional 0.4 income units so that total income for a three person household will have to 1.9 units (= 1 + 0.5 + 0.4).

**Chart A1. Sensitivity to equivalence scales – income necessary for additional household members to keep the same level of wellbeing**



Source : OECD Secretariat simulations.

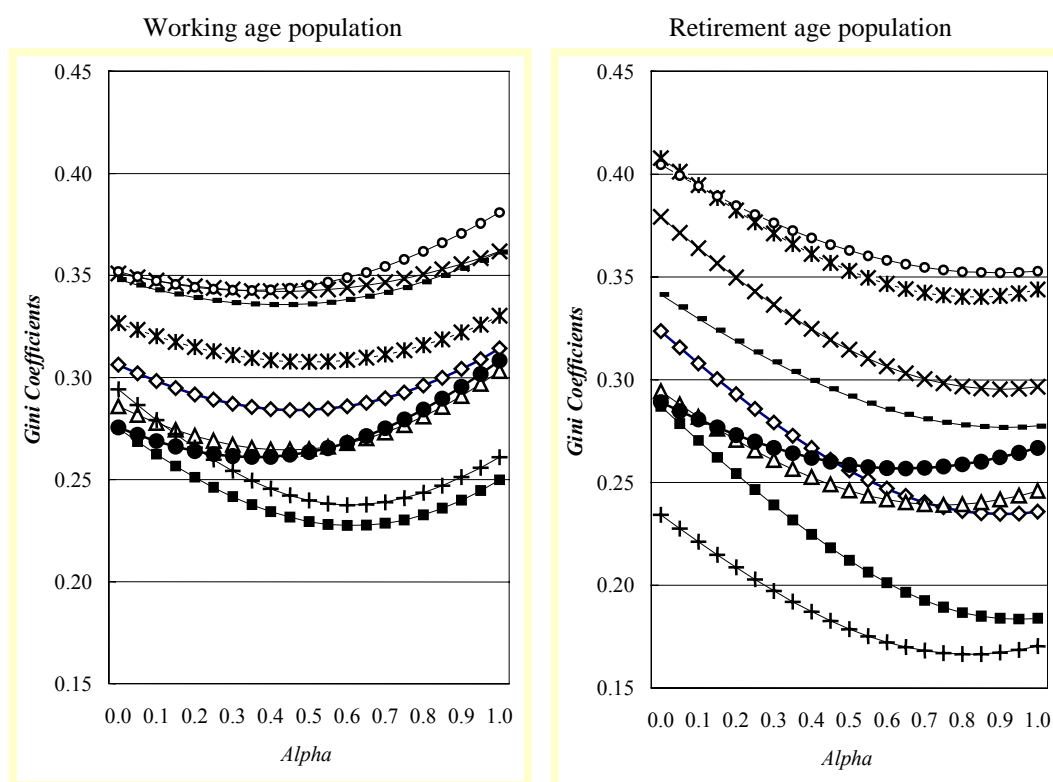
136. In the extreme case, where  $\alpha$  is 0.0, an additional household member will not need any additional income. In the other extreme case where  $\alpha$  is 1, an additional household member needs exactly same amount of income unit that the person in a single household.

137. Chart A1 shows that:

- An increase in the value of  $\alpha$  increases the amount of income needed for each additional household member.
- There are often large differences in the amount of additional income needed if the household size increases from one to two people, and this is shown by the way in which each line drops sharply between household member 1 (the individual in single household) and household member 2 (the second member of couple household).
- This implies the selection of  $\alpha$  has important consequences when consideration is given to countries with many single households - *i.e.* countries where average household size is small.

138. Chart A2 shows the Gini coefficients for the working-age population and retirement age population given by different  $\alpha$  s. The horizontal axis indicates the value of  $\alpha$ , the vertical axis shows the Gini coefficient that is produced. In most countries, the line is U-shaped for working age population. Interestingly, where  $\alpha$  is greater than 0.5, there is no change in the ranking of the Gini coefficients of the nine countries.

Chart A2 Gini coefficients by value of alpha



Sources: OECD calculations based mainly on data from Luxembourg Income Study.  
See note in Annex B.

139. The U-shaped curve is less clear for the retirement age population, except in one country. However, most lines have minimum value for the Gini coefficients when  $\alpha$  is around 0.8 and only one country changes its ranking between 0.5 and 1.0.

140. Chart A3 shows the low income rate. The low income threshold used for our analysis is defined as 50% of the median disposable income of the working-age population. The adjusted median income also differs according to different values of  $\alpha$ . However, the fact that different values of  $\alpha$  produce different median disposable incomes does not necessarily mean that the low-income rate varies substantially depending on the choice of  $\alpha$ . This is because the different values of  $\alpha$  also affect the median disposable income itself and thus the value of 50% of that median disposable income. Indeed, the lower the value of  $\alpha$ , the higher the value of median disposable income, and vice versa.

141. Chart A3 shows how the low income rate moves according to different values of  $\alpha$ . Contrary to our experiments with Gini coefficients, the lines are not smooth. Except for the case Finland and Sweden, the rate is more or less stable for values of  $\alpha$  in excess of 0.5.

**Chart A3 Low-income rates for working-age population and retirement-age population**

Low income = 50 % of median disposable income for working age population



Sources : the OECD calculations based mainly on data from Luxembourg Income Study.  
See note in Annex B.

142. For the retirement-age population (the reference is still 50% of the adjusted median income of working-age population). The low-income rate varies much more between countries when the retirement-

age population rather than the working-age population is considered. However, the low-income rate for all countries is relatively stable once  $\alpha$  exceeds around 0.7.

143. We repeated the exercise using the middle-upper income rate. Chart A4 shows the middle-upper income rate for the working-age population. The middle-upper income threshold is set at 1.5 times of median disposable income of working-age population. Both the threshold and the adjusted income to be evaluated vary as  $\alpha$  changes in value from 0.0 to 1.0. Again, the horizontal axis and the vertical axis show different  $\alpha$ s and the proportion of the population falling into the middle-upper income level. Chart A4 shows that the proportion in the middle-upper income range takes, on average, its minimum value when  $\alpha$  is 0.45.

**Chart A4 Middle-upper income rate for working-age population and retirement-age population**

Middle-upper income = 150 % of median disposable income for working age



Sources : OECD calculations based mainly on data from Luxembourg Income Study.  
See note in Annex B.

144. In terms of retirement age population, unlike for the working-age population, the proportion of the population in the middle-upper income range does not take a minimum value except in one country. It increases monotonously as  $\alpha$  increases. Only one country has stability for different values of  $\alpha$  and the proportion above the middle-upper income level always lies between 15 and 17%.

## ANNEX 2. TABLES

**Table 2.1 Adjusted median incomes in mid 1990s - selected age groups**  
as a percentage of adjusted median disposable income of the working age population (18-64)

	All aged 65 and above			Selected ages			
	All	Male	Female	45-54	55-64	65-74	75+
Canada	75	82	70	115	95	80	67
Finland	78	86	71	114	99	82	71
Germany	84	91	80	113	98	88	78
Italy	87	93	81	104	104	90	80
Japan	80	82	79	112	101	81	80
Netherlands	71	77	68	109	95	75	66
Sweden	84	88	81	119	113	89	79
United Kingdom	63	68	59	117	90	68	57
United States	74	83	69	121	104	81	66

*Source:* OECD calculations based mainly on data from Luxembourg Income Study. See box in annex 1.

**Table 2.2 Changes in disposable income after middle age**

	Late middle age	Pre- retirement age	Younger retirement age	Older retirement age
	45-54	55-64	65-74	75+
Canada	100	83	70	58
Finland	100	86	71	62
Germany	100	87	78	69
Italy	100	100	87	77
Japan	100	90	72	71
Netherlands	100	87	69	60
Sweden	100	95	75	66
United Kingdom	100	77	58	49
United States	100	86	67	55

*Source:* OECD calculations based mainly on data from Luxembourg Income Study. See box in annex 1.

**Table 2.3 Consumption of older people** <sup>a), b),</sup>  
excluding expenditure on housing

	(%)	Older single <sup>c)</sup>	Older couple <sup>d)</sup>	Younger couple <sup>e)</sup>
Canada		58	77	100
Finland		52	81	100
Germany		79	107	100
Italy		71	85	100
Japan		83	102	100
Netherlands		74	103	100
Sweden <sup>f)</sup>		65	88	100
United Kingdom		59	85	100
United States		75	95	100

*Note:*

a) Direct tax, and social security contributions are not counted as part of consumption expenditures.

b) As a percentage of the equivalised consumption of couples with children.

c) Single household headed by a person aged 65 and over.

d) Two member household headed by a person aged 65 and over.

e) For European countries and Japan, couples with two children. For Canada, couples with children but no additional persons. For US, four member household headed by a person aged 35 to 44.

f) For Sweden, the consumption of water, electricity, and other fuels is not available and therefore is not included here.

*Sources:*

OECD calculations based on Eurostat (1999) *Household Budget Survey*, Statistics Canada (1998) *Spending Patterns in Canada*, Statistics Bureau Japan (1999) *National Survey of Family Income and Expenditure*, U.S. Department of Labor Bureau (1998) *Consumer Expenditure Survey*.

Table 2.4 Consumption of selected items <sup>a)</sup>

	(1) Food And Non-Alcoholic Beverages					
	Total Spending <sup>b)</sup> of Younger Couple = 1.00 unit			Spending Level of Younger Couple for the item = 100 %		
	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>
Canada <sup>f)</sup>	0.15	0.18	0.20	73%	89%	100%
Finland	0.14	0.20	0.20	72%	101%	100%
Germany	0.14	0.18	0.17	81%	105%	100%
Italy	0.22	0.26	0.25	87%	103%	100%
Japan	0.12	0.17	0.15	84%	119%	100%
Netherlands	0.12	0.18	0.17	67%	103%	100%
Sweden	0.20	0.26	0.26	77%	99%	100%
United Kingdom	0.12	0.17	0.17	72%	100%	100%
United States	0.08	0.10	0.11	71%	92%	100%

	(2) Transport					
	Total Spending <sup>b)</sup> of Younger Couple = 1.00 unit			Spending Level of Younger Couple for the item = 100 %		
	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>
Canada <sup>f)</sup>	0.09	0.16	0.23	37%	70%	100%
Finland	0.04	0.12	0.19	19%	65%	100%
Germany	0.07	0.14	0.18	37%	79%	100%
Italy	0.03	0.09	0.15	20%	56%	100%
Japan	0.04	0.07	0.10	39%	67%	100%
Netherlands	0.06	0.11	0.10	53%	103%	100%
Sweden	0.08	0.13	0.17	46%	75%	100%
United Kingdom	0.04	0.12	0.13	29%	92%	100%
United States	0.12	0.21	0.26	45%	81%	100%

	(3) Recreation and Culture					
	Total Spending <sup>b)</sup> of Younger Couple = 1.00 unit			Spending Level of Younger Couple for the item = 100 %		
	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>	Older Single <sup>e)</sup>	Older Couple <sup>d)</sup>	Younger Couple <sup>e)</sup>
Canada <sup>f)</sup>	0.07	0.11	0.15	51%	74%	100%
Finland	0.07	0.11	0.15	50%	77%	100%
Germany	0.12	0.16	0.14	88%	115%	100%
Italy	0.08	0.07	0.11	74%	69%	100%
Japan	0.12	0.13	0.10	121%	132%	100%
Netherlands	0.11	0.15	0.15	71%	98%	100%
Sweden	0.11	0.14	0.17	65%	85%	100%
United Kingdom	0.08	0.13	0.14	57%	90%	100%
United States	0.05	0.09	0.09	56%	94%	100%

*Note:*

- a) The results here should be treated carefully as not all detailed items are harmonised completely.  
b) Excluding housing expenditure, direct tax payments and social security contributions.  
c) Single household headed by the person aged 65 and over. For Japan, the household does not include an earner.  
d) Two member household headed by the person aged 65 and over. For Japan, the household does not include an earner.  
e) For European countries and Japan, couples with two children. For Canada, couples with children but no additional persons. For the U.S., four member households headed by a person aged 35 to 44.  
f) In Canadian data, the item "cafes and restaurants" is also covered under the item "food and non-alcoholic beverages".

*Sources:*

OECD calculations based on Eurostat (1999) *Household Budget Survey*, Statistics Canada (1998) *Spending Patterns in Canada*, Statistics Bureau Japan (1999) *National Survey of Family Income and Expenditure*, U.S. Department of Labor Bureau (1998) *Consumer Expenditure Survey*.

**Table 2.5 Proportion of homes fully owned, by age  
home owners only**

	Age of head of household	Percent fully owned
Finland	50-59	93
	60-69	99
Italy	50-54	98
	55-59	99
	60-64	98
	65-69	100
United Kingdom	45-54	75
	55-64	90
	65-74	98
	75+	100

*Note* : Non home-owners (renters) excluded.

*Source* : OECD Wealth data.

**Table 2.6 Spending level on housing, by age  
as a percentage of spending level of the younger couple households**

	Older Single <sup>a)</sup>	Older Couple <sup>b)</sup>	Younger Couple <sup>c)</sup>
Canada	115	64	100
Japan	32	16	100
United States	49	37	100

*Note*:

a) Single household headed by the person aged 65 and over. For Japan, the household does not include an earner.

b) Two member household headed by the person aged 65 and over. For Japan, the household does not include an earner.

c) For European countries and Japan, couples with two children. For Canada, couples with children but no additional persons. For the U.S., four member households headed by a person aged 35 to 44.

*Sources*:

OECD calculations based on Eurostat (1999) *Household Budget Survey*, Statistics Canada (1998) *Spending Patterns in Canada*, Statistics Bureau Japan (1999) *National Survey of Family Income and Expenditure*, U.S. Department of Labor Bureau (1998) *Consumer Expenditure Surveys*

**Table 2.7 Distribution of population by income group**

	Lower Income $\longleftrightarrow$ Higher Income				
	Age 18+				
	Quintile 1	2	3	4	5
All countries	20	20	20	20	20
Age 65-74					
	Quintile 1	2	3	4	5
Canada	22	32	19	16	11
Finland	28	30	19	13	10
Germany	21	25	24	15	15
Italy	21	23	23	19	14
Japan	27	26	17	17	14
Netherlands	32	28	15	14	12
Sweden	16	31	22	17	13
United Kingdom	27	32	20	13	9
United States	24	25	21	16	15
Age 75+					
	Quintile 1	2	3	4	5
Canada	34	33	15	10	9
Finland	43	26	15	8	8
Germany	31	29	18	13	10
Italy	23	28	22	15	12
Japan	34	20	15	14	17
Netherlands	43	27	11	10	9
Sweden	32	36	21	8	4
United Kingdom	39	35	12	8	6
United States	35	27	17	11	10

Sources : OECD calculations based mainly on data from Luxembourg Income Study. See Box in Annex 1.

**Table 2.8 Proportion of the population above the middle-upper income in cut-off line <sup>a)</sup>**

	All (18+)	Age 65-74	Age 75+
Canada	18	10	8
Finland	12	7	6
Germany	15	11	7
Italy	22	15	14
Japan	20	14	17
Netherlands	16	9	7
Sweden	11	7	2
United Kingdom	20	9	6
United States	24	17	12

Note : a) The middle-upper income cut-off line is 150% of the median disposable income of age 18-64.

Sources : OECD calculations based mainly on data from Luxembourg Income Study. See Box in Annex 1.

**Table 2.9 Absolute comparisons of wellbeing based on purchasing power parities**  
thousands of United States dollars, mid-1990s

	Mean disposable income of retirement age population	Gross Domestic Product per capita	Mean disposable income of 1st quintile of entire population	Mean disposable income of old single women living alone	50 per cent of median disposable income of working age population	Percentage of retirement age population below...	
						7,000 \$	10,000 \$
Canada	17	21	8	13	10	1	11
Finland	12	19	7	9	7	7	41
Germany	14	20	7	13	7	8	27
Italy	13	20	5	10	6	20	45
Japan	18	23	7	11	9	14	26
Netherlands	12	19	5	11	7	9	51
Sweden	12	19	7	11	7	4	28
United Kingdom	12	19	6	9	8	17	53
United States	18	26	6	14	10	12	27

Sources : OECD calculations based mainly on data from Luxembourg Income Study. See Box in Annex 1.

**Table 3.1 Proportion of men aged 60 to 64 that are in the bottom income quintile,  
by retirement transition category**

	People age 18+		Men aged 60-64			
	Entire population	Normal Employees (Workers without pensions)	Early retirees (Non-workers with pension)	Working pensioners	Unemployed	Non-workers without pension and unemployment compensations
Canada	20	10	28	17	30	51
Finland	20	18	15	..	..	..
Germany	20	7	31	..	..	51
Italy	20	16	10	..	..	42
Japan	20	21	26	14	..	..
Netherlands	20	..	5	..	..	46
Sweden	20	10	8	4	..	..
United Kingdom	20	8	16	..	..	..
United States	20	9	21	8	..	53

.. Data not available. The cell has an unweighted sample of less than 50.

Sources : OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 3.2 Results of a “pseudo-simulation” where countries are assumed to have the work-retirement patterns of Japan or Finland**  
for people aged 55-69

	Differences of mean income (%)			Differences of Gini coefficients (%)		
	The market income (mean value)	After receiving social security benefits (mean value)	After receiving social security benefits and paying tax and contributions (mean value)	Market income (labour incomes + private pensions + capital incomes + private transfers)	After receiving social security benefits	After receiving social security benefits and paying tax and contributions
Japanese Case						
Canada	16	9	8	-5	2	2
Finland	67	13	10	-14	5	8
Germany	28	15	12	-10	1	5
Italy <sup>a)</sup>	52		17	-10		5
Japan	..	..	..	..	..	..
Netherlands	32	14	13	-9	0	2
Sweden <sup>b)</sup>	7	-1	-2	8	22	19
United Kingdom	16	8	6	-7	1	3
United States	7	5	4	-2	1	1
Finnish Case						
Canada	-8	-3	-2	0	-4	-4
Finland	..	..	..	..	..	..
Germany	-18	-6	-2	8	-1	-1
Italy <sup>a)</sup>	2		6	1		-2
Japan	-24	-11	-9	15	1	1
the Netherlands	10	9	8	-11	-5	-6
Sweden <sup>b)</sup>	-24	-8	-6	13	-1	-1
United Kingdom	-10	-6	-5	0	-4	-4
United States	-18	-11	-8	4	-3	-2

Note:

a) Italian data are on a net income basis, and therefore the two effects are not identifiable.

b) The reference unit in the Swedish income data is a "tax unit" rather than a "family" or "household".

Sources: OECD calculations based on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 4.1 Recipients of means-tested benefit and private pensions and the importance of these benefits**

		With means- tested benefits	Proportion to the beneficiaries' average disposable income	With private pensions	Proportion to the beneficiaries' average disposable income
Canada	60-64	18	30	39	46
	65-69	16	10	59	38
	70-74	19	8	57	38
	75+	29	7	48	35
Finland	60-64	18	12	4	2
	65-69	14	13	..	..
	70-74	16	13	..	..
	75+	21	12	..	..
Germany	60-64	10	16	12	15
	65-69	7	12	16	20
	70-74	..	..	17	15
	75+	..	..	11	20
Italy	60-64	..	..	4	34
	65-69	..	..	5	33
	70-74	..	..	..	..
	75+	..	..	..	..
Japan	60-64	..	..	8	14
	65-69	..	..	9	12
	70-74	..	..	..	..
	75+	..	..	..	..
Netherlands	60-64	12	45	55	98
	65-69	..	..	74	56
	70-74	..	..	77	50
	75+	13	9	66	44
Sweden	60-64	10	20	59	40
	65-69	16	14	89	28
	70-74	25	15	83	23
	75+	42	18	71	24
United Kingdom	60-64	20	38	63	45
	65-69	17	27	79	40
	70-74	27	26	73	39
	75+	38	29	61	38
United States	60-64	12	20	39	40
	65-69	11	22	49	36
	70-74	11	19	51	37
	75+	11	18	43	33

*Note:*

.. Data not available, because the cells had sample sizes (unweighted) of under 50.

*Sources :* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 4.2 Mean disposable income of recipients of means-tested benefits**  
as a percentage of mean disposable income of each age category, mid-90s

	Age			
	60-64	65-69	70-74	75+
Canada	66	76	78	83
Finland	83	84	83	85
Germany	77	68	..	..
Italy	..	..	..	..
Japan	..	..	..	..
Netherlands	75	..	..	83
Sweden	73	81	85	93
United Kingdom	68	66	75	82
United States	49	49	57	60

*Note:*

.. Data not available, because the cells had sample sizes (unweighted) of under 50. With respect to Italy, there is no comparable system of social assistance.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 4.3 Mean disposable income of private pension beneficiaries**  
as a percentage of mean disposable income of each age category

	Age			
	60-64	65-69	70-74	75+
Canada	110	110	118	121
Finland	121	..	..	..
Germany	111	132	119	117
Italy	182	183	..	..
Japan	142	135	..	..
Netherlands	111	106	107	108
Sweden	106	103	104	106
United Kingdom	106	107	110	110
United States	112	118	120	129

*Note:*

.. Data not available, because the cells had sample sizes (unweighted) of under 50. With respect to Italy, there is no comparable system of social assistance.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

Table 4.4 Combination of private and public pension of early retirees and normal retirees

	Male age 55-59				Male age 60-64				Male age 65-69			
	Beneficiaries of public pensions (own)	Beneficiaries of private pensions (own)	As a percentage of average disposable income of working age population		Beneficiaries of public pensions (own)	Beneficiaries of private pensions (own)	As a percentage of average disposable income of working age population		Beneficiaries of public pensions (own)	Beneficiaries of private pensions (own)	As a percentage of average disposable income of working age population	
			Own public pension	Own private pension			Own public pension	Own private pension			Own public pension	Own private pension
Non-working pensioners												
Canada	42	73	11	57	86	63	19	46	100	61	41	31
Finland	100	2	86	0	100	4	89	0	100	3	95	0
Germany	97	6	63	6	99	19	67	2	100	16	79	5
Italy	98	2	94	3	99	4	86	2	98	5	75	4
Japan	..	..	..	..	99	15	57	4	99	13	65	2
Netherlands	..	..	..	..	8	95	7	176	95	83	50	52
Sweden	80	61	61	27	79	73	63	52	100	88	88	26
United Kingdom	47	70	0	51	42	80	0	48	99	81	27	37
United States	50	60	20	46	77	61	27	41	97	54	40	28
Working pensioners												
Canada	15	86	2	55	75	44	13	33	100	37	33	15
Finland	100	20	47	0	100	9	39	0	..	..	..	..
Germany	..	..	..	..	..	..	..	..	..	..	..	..
Italy	86	14	62	29	..	..	..	..	..	..	..	..
Japan	0	..	..	..	93	17	36	5	99	8	48	2
Netherlands	..	..	..	..	..	..	..	..	..	..	..	..
Sweden	42	86	18	23	70	60	33	27	99	84	76	46
United Kingdom	0	100	0	94	0	100	0	55	100	81	33	31
United States	7	96	2	70	45	73	13	47	91	46	38	25

Note :

Private pensions are not identifiable in the Finnish data set, and therefore the numbers are approximations based on household level private income.

.. Data not available, because the cells had an unweighted sample of fewer than 40.

Sources : OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 5.1 Proportion of young adults living with their parents**

	Men		Women	
	Age category			
	25-29	30-34	25-29	30-34
Canada	25	11	13	6
Finland	0	0	4	2
Germany	33	15	13	3
Italy	76	33	50	20
Japan	59	36	48	28
Netherlands	26	5	5	1
United Kingdom	22	7	9	4
United States	19	9	12	6

*Note:*

The coding of the relationship to household head is based on the original definition of each country. Since the numbers are obtained by income survey data, the numbers could be different from those given in national censuses.

The Swedish definition of Household in the Survey is based on "Tax Units". Therefore, the data are not shown in this chart.

*Sources:*

OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 5.2 Proportion of older people by household type**

	Single women living alone			Single persons living with others and the person is not household head			Persons living with spouse where neither the person nor the spouse is the household head		
	age category			age category			age category		
	55-64	65-74	75+	55-64	65-74	75+	55-64	65-74	75+
Canada	9	17	32	4	5	9	2	2	2
Finland	14	26	43	2	3	8	3	4	4
Germany	12	27	54	1	1	5	0	0	0
Italy	4	16	28	3	7	23	2	2	3
Japan	4	9	11	3	10	35	2	7	10
Netherlands	10	24	40	1	0	2	0	0	0
United Kingdom	10	19	36	2	3	7	0	0	0
United States	9	18	33	5	5	9	1	1	1

*Note:* Since the numbers are obtained by income survey data, the numbers could be different from those given in national censuses.

The Swedish definition of household in the survey is based on "Tax Units". Therefore, the data are not shown in this chart.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 5.3 Proportion of older women in the lowest income quintile by living arrangements**

	(Age 18+)	(Age 75+)			
	Entire population (M & W)	All "older old" (M&W)	Single women living alone	Women living with spouse only	Single persons living with others (and the person is not household head)
Canada	20	34	61	20	7
Finland	20	43	75	20	10
Germany	20	31	43	15	..
Italy	20	23	43	16	12
Japan	20	34	79	59	18
Netherlands	20	43	51	41	..
Sweden	20	32	38	22	..
United Kingdom	20	39	47	39	13
United States	20	35	56	23	19

.. Data not available.

*Note:* The reference unit in the Swedish income data is a "tax unit" rather than a "family" or "household".

The data on Sweden are, therefore, less comparable.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

Table 5.4 **Difference between the disposable income of widows living alone and couples in two-person households**

	Total difference	Portion of the differences that is attributed to ...						Household economies of scale
		Working income per capita	Public pension per capita <sup>a</sup>	Private pension per capita <sup>a</sup>	Other public benefits per capita <sup>a, b</sup>	Tax and contributions per capita <sup>a</sup>	Other income items	
Pure couple <sup>c</sup> to widow (65-74)								
Canada <sup>d</sup>	-32	-7	12	-13	3	7	-5	-29
Finland	-30	-3	-2	0	1	7	-3	-29
Germany	-7	1	27	3	0	-2	-6	-29
Italy	-23	-2	19	-2	-1	..	-7	-29
Japan	-37	-22	-2	1	1	8	5	-29
Netherlands	-19	-6	31	-14	1	2	-4	-29
Sweden <sup>d</sup>	-22	-4	-2	-7	17	8	-5	-29
United Kingdom	-29	-6	13	-11	9	4	-9	-29
United States	-33	-7	5	-7	1	2	3	-29
Pure couple <sup>c</sup> to widow (75+)								
Canada <sup>d</sup>	-29	-2	12	-14	3	7	-6	-29
Finland	-29	0	-9	0	2	9	-2	-29
Germany	-25	0	3	-1	0	-1	4	-29
Italy	-20	0	19	-2	-1	..	-6	-29
Japan	-33	-15	7	0	3	11	-9	-29
Netherlands	-13	0	30	-4	2	-4	-7	-29
Sweden <sup>d</sup>	-13	-2	-10	-5	30	10	-6	-29
United Kingdom	-22	-1	8	-13	14	2	-4	-29
United States	-37	-7	3	-9	1	4	0	-29

.. Data not available.

a) These components are not "own income". The numbers are calculated from household-level income divided by household size (one or two persons).

b) "Other public benefits" include means-tested benefits.

c) Couple without children.

d) For Canada, "Widow" also includes "Separated" and "Divorced." For Sweden, "Widow" cannot be identified at all, and therefore the calculation is based on "single female living alone".

e) Variables for tax and social security contributions are not available in the Italian data.

Sources: OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 5.5 Mean value of "own pensions" for people aged 65 and above as a percentage of gross earnings of average production workers (APW)**

	Married			Single		
	A	B	(A+B)/2	Never married	Divorced	Widowed
	(Male)	(Female)		(Female)	(Female)	(Female)
	"own" public pension					
Canada	33	22	27	31	(32)	
Finland	59	34	47	43	37	42
Germany	53	16	34	49	31	40
Italy	43	16	29	26		33
Japan	44	14	29	34	20	22
Netherlands	24	20	22	34		31
Sweden	61	33	47		(41)	
United Kingdom	23	12	18	22	20	21
United States	33	19	26	21	23	28
"own" private pension						
Canada	24	5	15	15	(8)	
Finland	..	..	..	..	..	..
Germany	3	0	2	1	0	1
Italy	3	0	2	0		1
Japan	1	0	1	1	0	0
Netherlands	27	2	14	26		10
Sweden	20	6	13		(7)	
United Kingdom	24	3	13	15	8	8
United States	21	5	13	14	9	7

*Note:*

1. .. Data not available, because the cells had sample sizes (unweighted) of under 50.
2. Never Married, Divorced and Widowed are not completely identifiable in the Canadian and Swedish data sets.

*Sources:*

OECD calculations based mainly on data from Luxembourg Income Study. See box in Annex 1.

**Table 5.6 Results from a “pseudo micro-simulation” where countries are assumed to have the living arrangements of Japan or Finland**

for people aged 65-79

	Differences of mean income (%)			Differences of Gini coefficients (%)		
	The market income (mean value)	After receiving social security benefits (mean value)	After receiving social security benefits and paying tax and contributions (mean value)	Market income (labour incomes + private pensions + capital incomes + private transfers)	After receiving social security benefits	After receiving social security benefits and paying tax and contributions
Japanese Case						
Canada	38	15	13	-13	0	1
Finland	177	15	18	-22	-13	-7
Germany	159	19	9	-34	-13	-18
Italy <sup>a</sup>	20		-5	-1		10
Japan	..	..	..	..	..	..
Netherlands	8	-3	-4	-10	5	9
Sweden <sup>b</sup>	16	4	3	-5	-4	-3
United Kingdom	52	24	20	-14	0	0
United States	25	9	7	-12	-3	-3
Finnish Case						
Canada	-11	-5	-5	4	0	-1
Finland	..	..	..	..	..	..
Germany	-3	-1	0	2	1	1
Italy <sup>a</sup>	-15		0	-1		-7
Japan	-45	-20	-18	29	11	10
Netherlands	-2	-1	-1	0	-1	-1
Sweden <sup>b</sup>	-1	-1	-1	-1	-1	0
United Kingdom	-5	-3	-3	1	-1	-1
United States	-7	-4	-4	4	2	2

Note:

a) Italian data are on a net income basis, and therefore the two effects are not identifiable.

b) The reference unit in the Swedish income data is a "tax unit" rather than a "family" or "household". The data on Sweden are, therefore, less comparable.

Sources: OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Table 6.1 Proportion of households reporting market wealth**  
couple households

	Pre-retirement age											
	Financial wealth						Housing wealth					
	Income quintile						Income quintile					
	All	1	2	3	4	5	All	1	2	3	4	5
Canada <sup>a</sup>	..	..	..	..	..	..	88	81	85	90	87	96
Finland	81	78	84	87	78	79	90	79	91	93	90	97
Germany	98	93	98	98	99	99	59	40	50	55	66	83
Italy	96	88	95	98	99	100	83	68	79	84	89	96
Japan	97	94	97	97	99	97	84	74	78	84	93	90
Netherlands	99	99	99	100	100	100	60	47	42	57	68	84
Sweden	100	98	100	100	100	100	84	74	82	85	88	92
United Kingdom	76	58	63	79	90	93	81	76	71	80	89	88
United States	95	83	95	97	99	99	90	75	90	94	95	95

	Post-retirement age											
	Financial wealth						Housing wealth					
	Income quintile						Income quintile					
	All	1	2	3	4	5	All	1	2	3	4	5
Canada <sup>a</sup>	..	..	..	..	..	..	85	80	81	82	87	93
Finland	83	81	81	86	84	83	92	93	90	85	92	99
Germany	97	93	96	99	99	99	58	46	48	49	63	82
Italy	93	79	91	95	100	100	82	70	79	83	85	95
Japan	99	99	100	99	99	99	92	82	91	94	95	97
Netherlands	99	100	100	98	100	98	41	40	20	31	44	69
Sweden	98	94	98	99	100	100	75	69	64	69	86	88
United Kingdom	81	66	71	83	90	96	78	74	67	79	79	93
United States	91	74	90	94	97	98	88	75	86	93	93	95

.. Data not available.

a) Numbers of households reporting housing wealth in Canada were obtained by the OECD from the Luxembourg Income Study.

Source: OECD Wealth Data. See Box in Annex 1.

**Table 6.2 Ratio of market wealth to gross income**  
couple households

	Financial wealth-to-gross income ratio	
	Pre-retirement age head	Post-retirement age head
Finland	0.3	0.7
Germany	0.5	1.2
Italy	1.2	2.5
Japan	1.5	3.6
Netherlands	0.4	0.9
Sweden	-0.1	0.7
United Kingdom	1.5	3.3
United States	1.5	2.9

	Housing wealth-to-gross income ratio	
	Pre-retirement age head	Post-retirement age head
Finland	2.1	3.2
Germany	2.8	4.5
Italy	2.1	3.0
Japan	4.2	8.9
Netherlands	1.2	1.6
Sweden	2.1	1.7
United Kingdom	2.6	3.9
United States	1.5	3.0

a) Financial assets are in gross terms.

Source : OECD Wealth Data. See Box in Annex 1.

**Table 6.3 Estimated rental value of owned home,  
as a percentage of real spending of each household**

	(%)	Older single <sup>b)</sup>	Older couple <sup>c)</sup>	Younger couple <sup>d)</sup>
Canada	..	..	..	..
Finland	43	31	21	..
Germany	10	12	10	..
Italy	26	20	13	..
Japan	35	27	18	..
Netherlands	17	16	18	..
Sweden	..	..	..	..
United Kingdom	26	18	12	..
United States	43	35	26	..

.. Data not available

a) This item is not included in total consumption. The results here should be treated carefully as not all detailed items are harmonised completely.

b) Single households headed by a person aged 65 or over. For Japan, there is no earner in the household.

c) Two person households headed by a person aged 65 and over. For Japan, there is no earner in the household.

d) For European countries and Japan, couples with two children. For Canada, couples with children and no additional persons. For the U.S., four member households headed by a person aged 35 to 44.

*Source* : Calculations from Eurostat (1999) *Household Budget Survey*, Statistics Canada (1998) *Spending Patterns in Canada*, Statistics Bureau Japan (1999) *National Survey of Family Income and Expenditure*, U.S. Department of Labor Bureau (1998) *Consumer Expenditure Survey*.

Table 6.4 **Relative importance of benefits in kind**

	Cash benefits <sup>a)</sup>	Care services <sup>b)</sup>	Health services <sup>c)</sup>	Total expenditure
Canada	100	n/a	90	n/a
Finland	100	13	35	148
Germany	100	5	48	153
Italy	100	1	n/a	n/a
Japan	100	4	70	174
Netherlands	100	6	45	151
Sweden	100	30	46	176
United Kingdom	100	8	45	153
United States	100	1	70	n/a

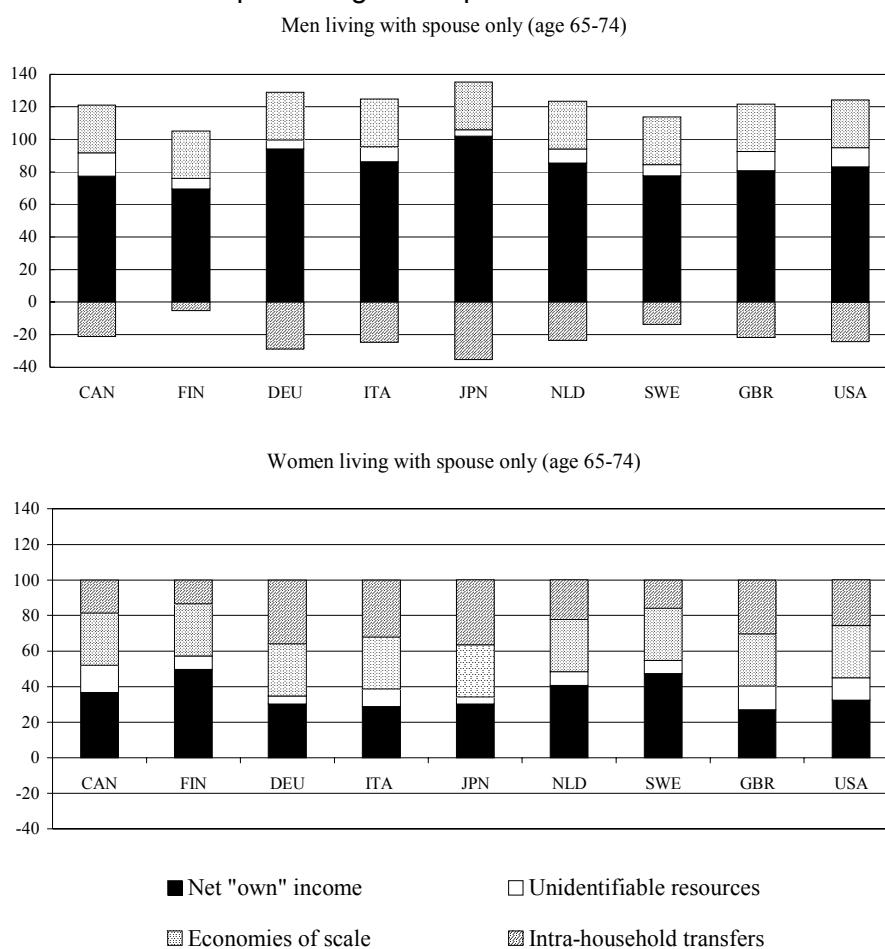
*Note:* n/a Data not available. For Canada, Italy and the United States, only national and not local government expenditure on care services is included. Therefore, data is not comparable across all countries.

- a) Old age cash benefits + disability cash benefits + survivors cash benefits + early retirement benefits for labour market reasons.
- b) Services for elderly and disabled people + survivors benefits in kind.
- c) Health expenditures for people aged 65 and over.

*Source :* Calculations from OECD (2001) Social Expenditure Data and OECD (2001) Health Data.

## ANNEX 3. CHARTS

**Chart 2.1 Main components of disposable income, older people living as couples**  
percentage of disposable income

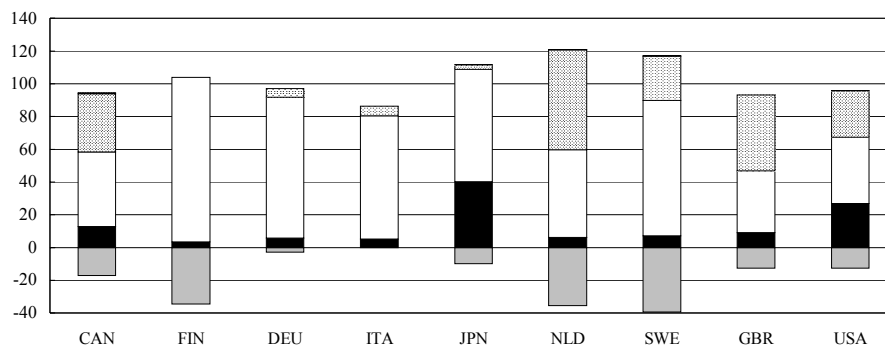


*Note:* "Unidentifiable resources" includes means-tested benefits accorded on the basis of the household's income, private transfers from outside and income from assets.

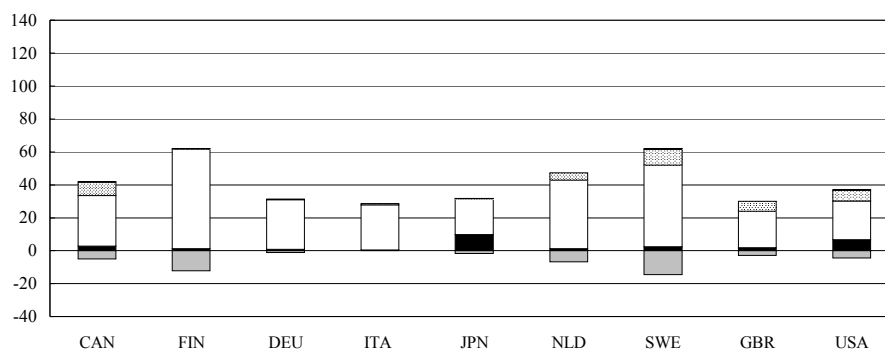
*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Chart 2.2 Make up of "own" income, older people living as couples**  
percentage of disposable income

Men living with spouse only (Age 65-74)



Women living with spouse only (Age 65-74)



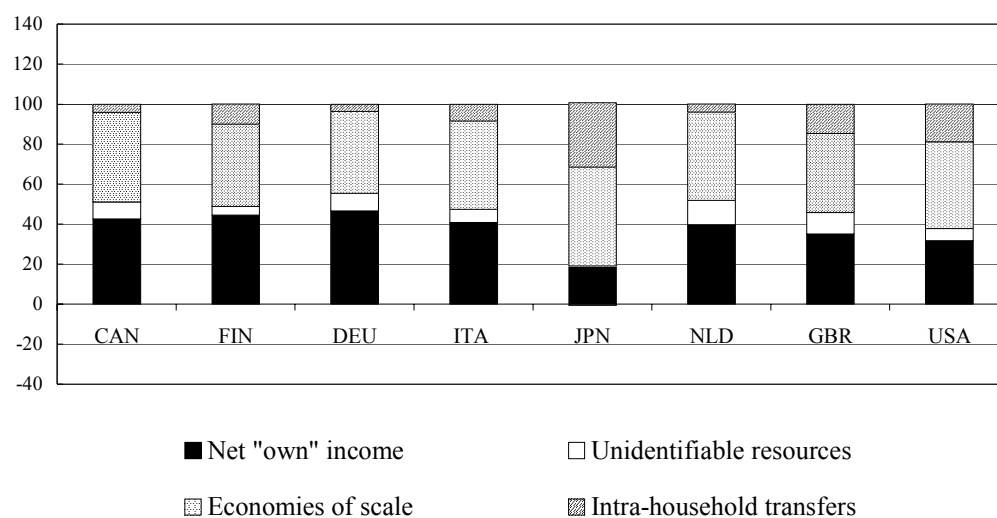
■ Working income      □ Public pension  
 ▨ Private pension      ▩ Unemployment benefits  
 ■ Tax and contributions

*Note:* Italian data are on a net income basis, because separate information on tax and contribution are not available.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Chart 2.3 Main components of disposable income, “older old” living as “subordinates”**  
percentage of disposable income

Single person aged 75 and over, living with others and the person is not household head



*Note:* The reference unit in the Swedish income data is a "tax unit" rather than a "family" or "household". Therefore, analysis for Sweden was not possible.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Chart 2.4 Make up of "own" disposable income, "older old" living as "subordinates"**  
percentage of disposable income

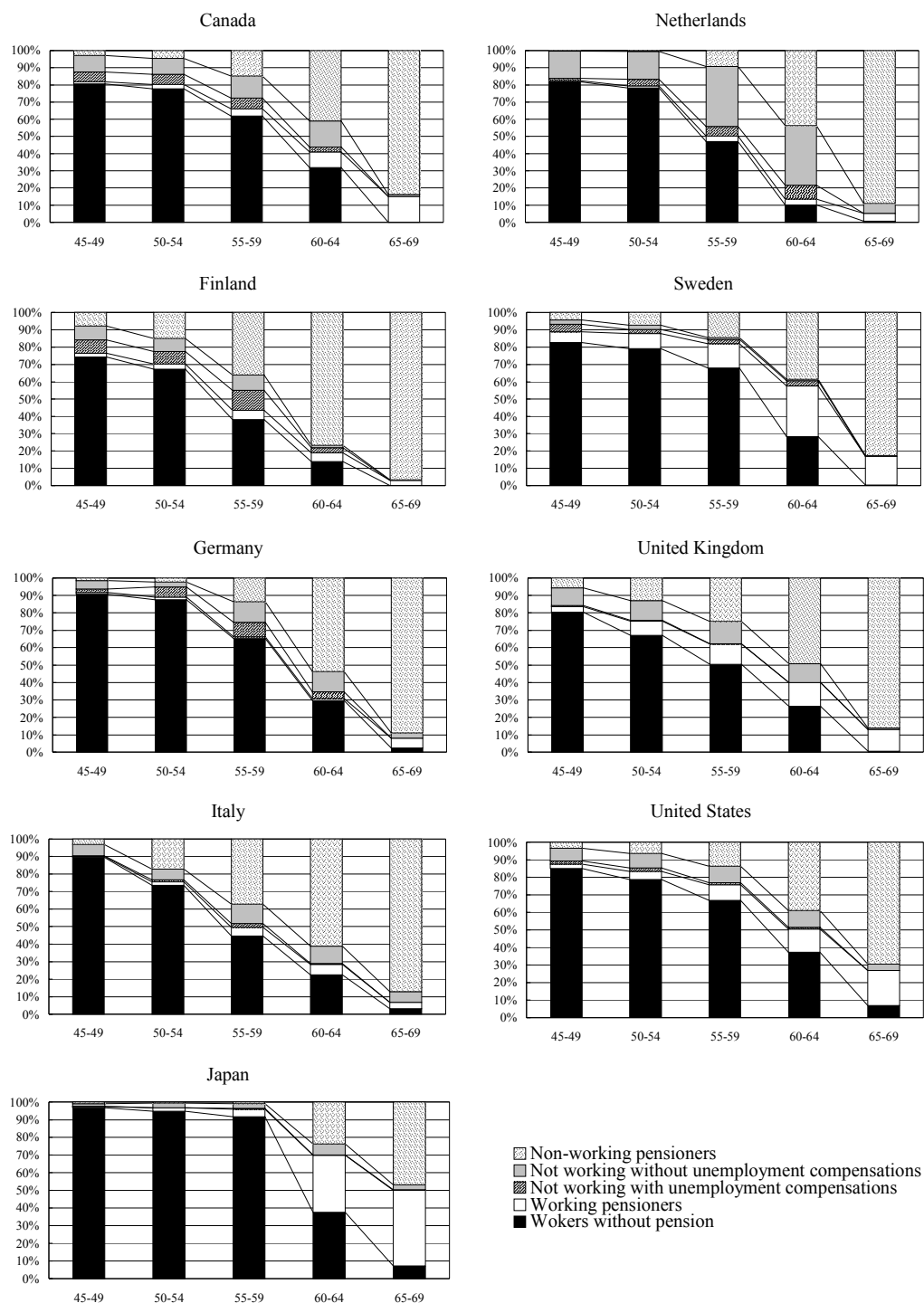
Single person aged 75+, living with others, and the person is not household head



*Note:* The reference unit in the Swedish income data is a "tax unit" rather than a "family" or "household". Therefore, analysis for Sweden was not possible. Italian data are on a net income basis, because separate information on tax and contribution are not available.

*Sources:* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

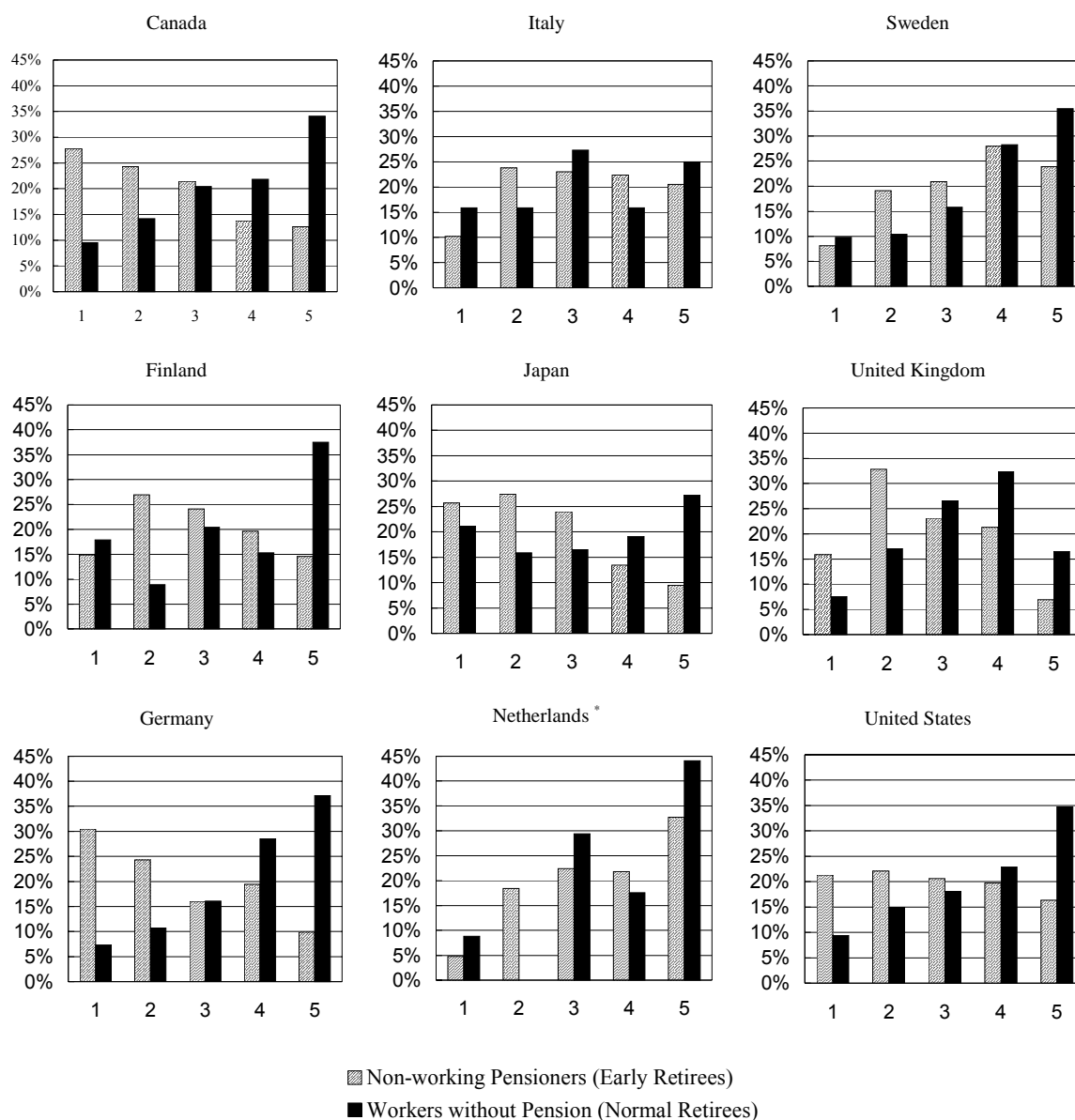
**Chart 3.1 Work-retirement transitions for older men**  
percentage of each age category



Sources: OECD calculations based mainly on data from the Luxembourg Income Study. See box in Annex 1.

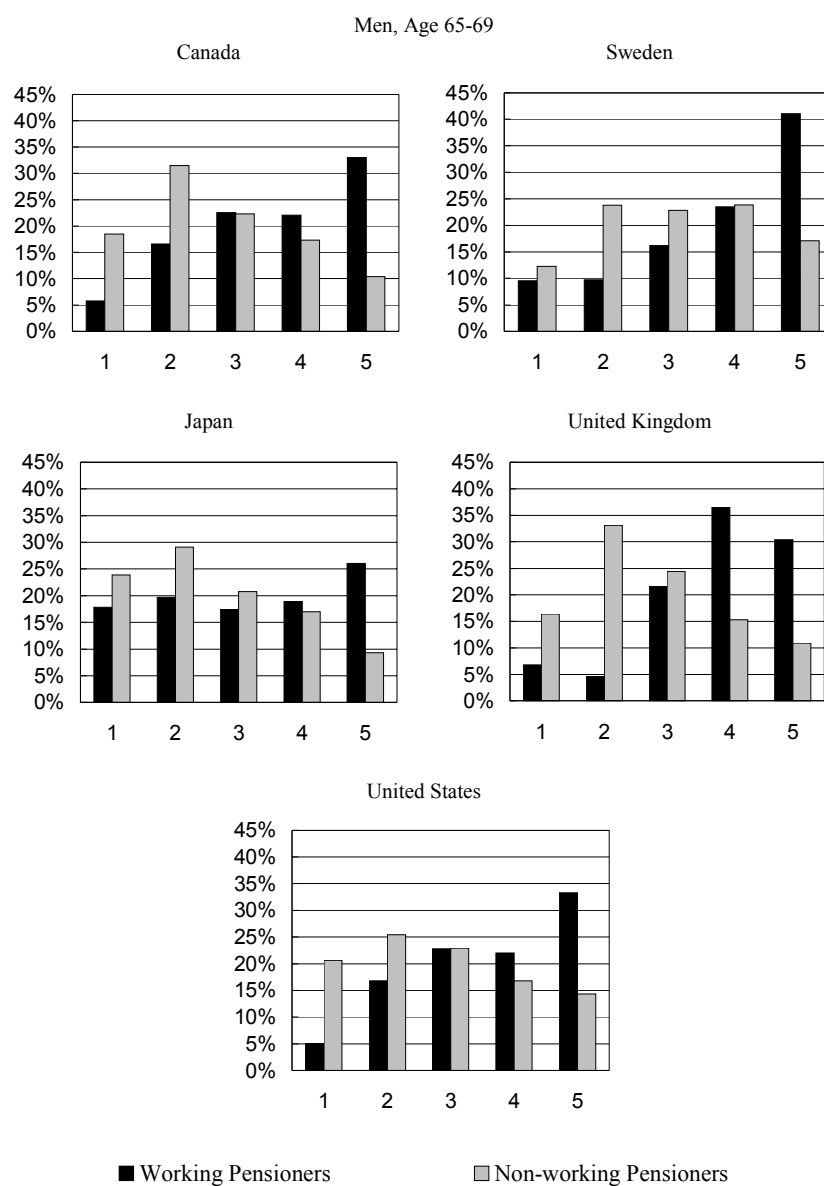
**Chart 3.2 Proportion of workers (without a pension) and early retirees (not at work, with a pension) in each income quintile**

men aged 60-64



*Note :* The sample size of "Workers without Pension" for the Netherlands is below 50.

*Sources :* OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

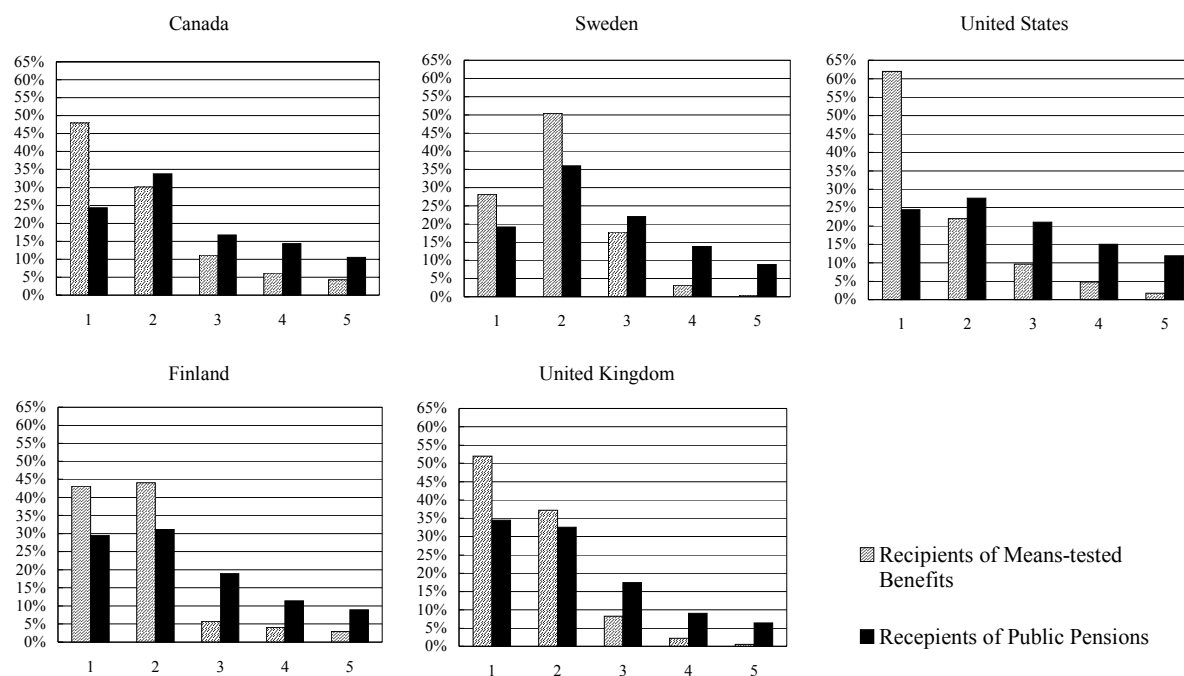
Chart 3.3 **Proportion of pensioners who work and who do not work in each income quintile**

*Note :* The countries where the working pensioners are not important are excluded.

*Sources :* OECD calculations based mainly on data from the Luxembourg Income Study.

See Box in Annex 1.

**Chart 4.1 Proportion of recipients of means-tested benefits and public pensions by income quintile aged 70-74**

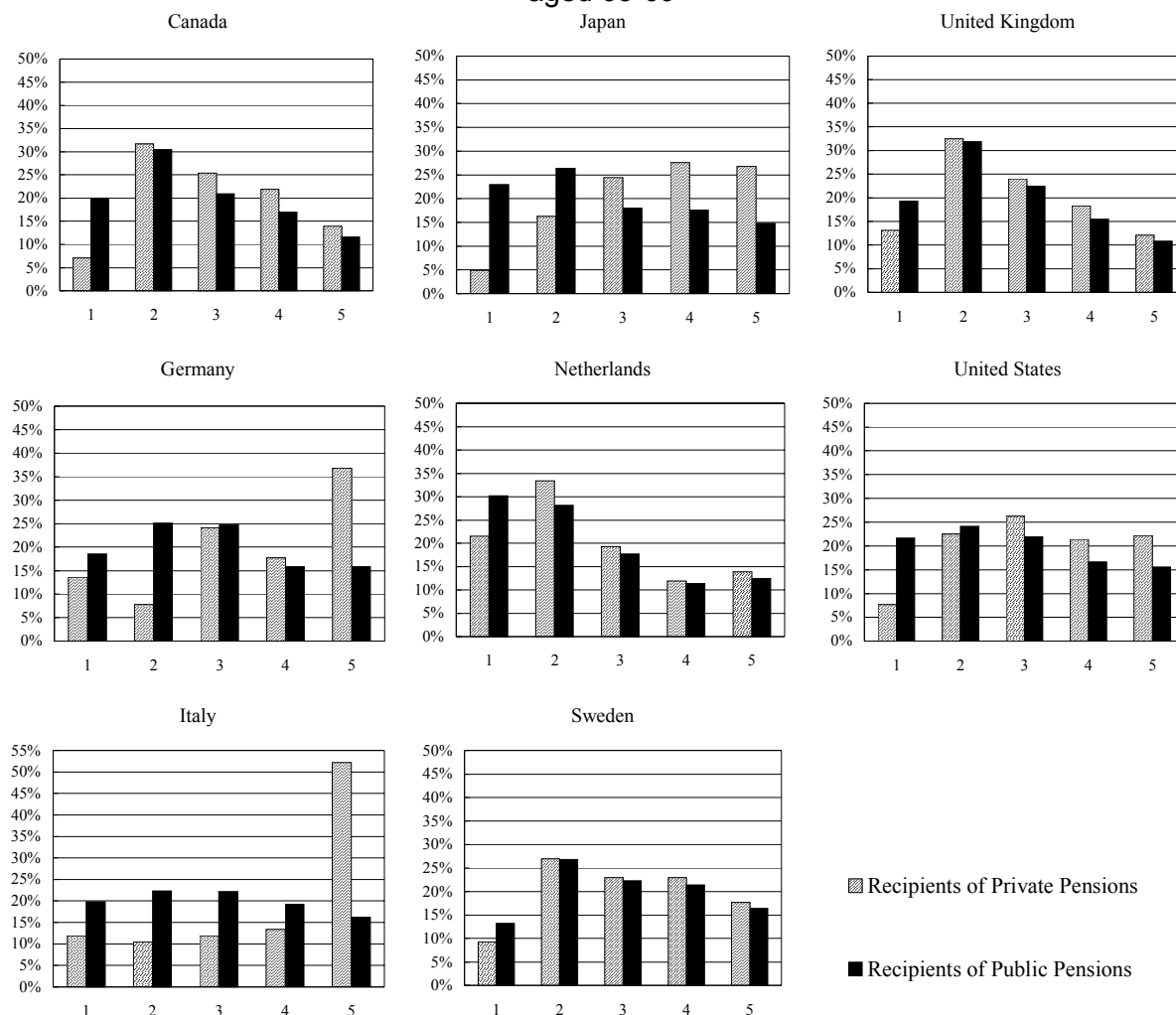


Note: The cells for recipients of means-tested benefits have samples (unweighted) of fewer than 50 in the remaining countries.

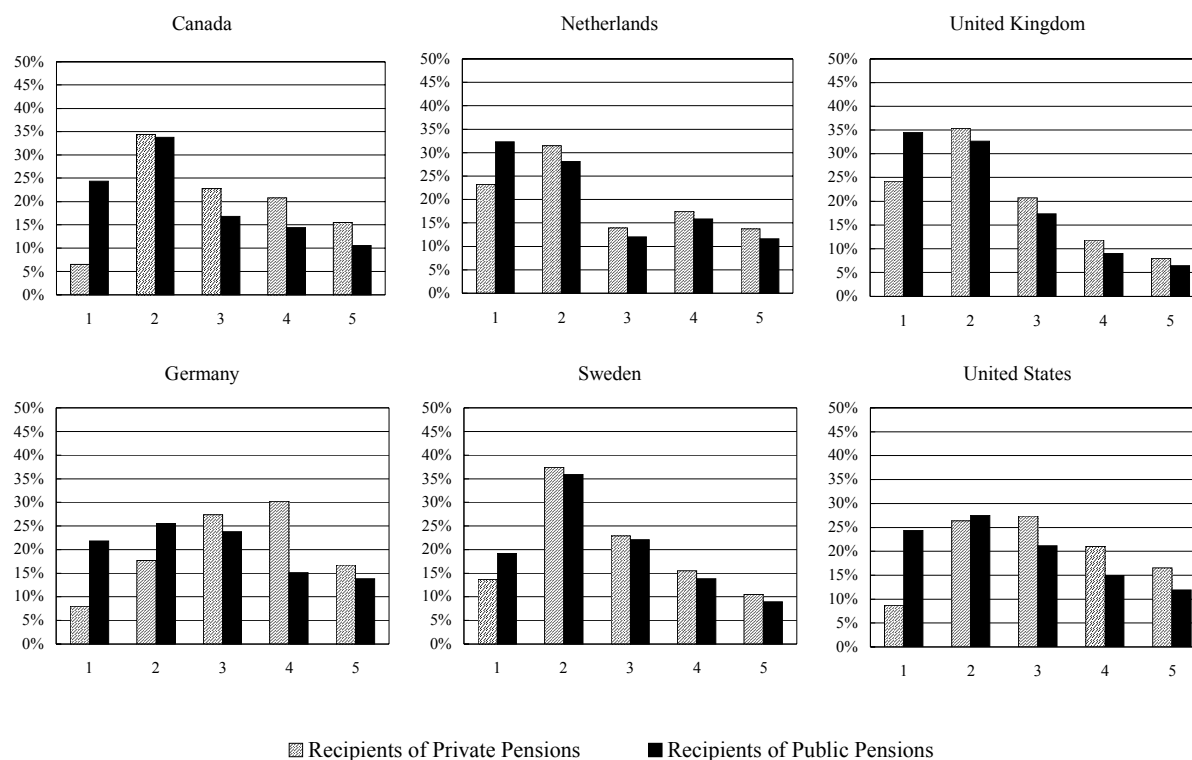
Source: OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

**Chart 4.2 Proportion of recipients of private pensions and public pensions by income quintile**

aged 65-69



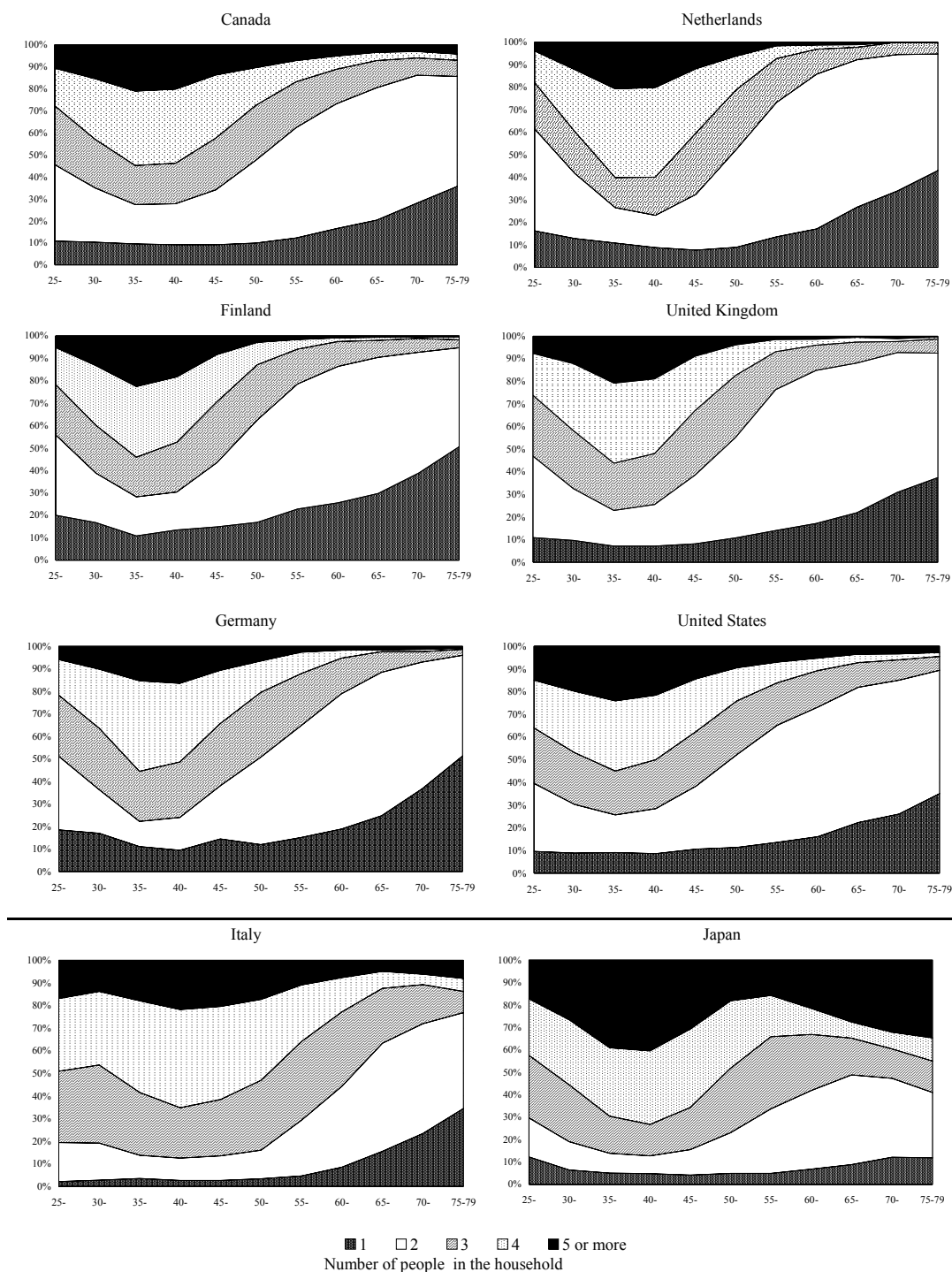
**Chart 4.2 (cont.) Proportion of recipients of private pensions and public pensions by income quintile aged 70-74**



*Note* : The cells for recipients of private pensions have samples (unweighted) of fewer than 50 in the remaining countries.

*Sources* : OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

Chart 5.1 Household size by person's age

**Note:**

Since the numbers are obtained by income survey data, the numbers could be different from those given in national censuses.

The Swedish definition of Household in the Survey is based on "Tax Units". Therefore, the data are not shown in this chart.

Sources: OECD calculations based mainly on data from the Luxembourg Income Study. See Box in Annex 1.

## BIBLIOGRAPHY

- ADEMA, W. (2001), *Net Social Expenditure - 2nd Edition*. (Labour Market and Social Policy Occasional Paper No. 52).
- CEU (2001), *Communication From The Commission To The Council, The European Parliament And The Economic And Social Committee: Supporting national strategies for safe and sustainable pensions through an integrated Approach*. COM(2001) 362 final, Brussels, 3 July 2001.
- DISNEY, R., M. MIRA D'ERCOLE and P. SCHERER (1998), *Resources during Retirement*, OECD Ageing Working Papers No. 4.3, Paris.
- DISNEY, R. and E. WHITEHOUSE (2001), *Cross-Country Comparisons Of Pensioners' Incomes*, UK Department of Social Security Research Report, No 142.
- OECD (1998a), *Maintaining Prosperity in an Ageing Society*, Paris.
- OECD (1998b) *Employment Outlook*, Paris.
- OECD (2000a), *Reforms for an Ageing Society*, Paris.
- OECD (2000b), *Private Pension Systems and Policy Issues*, Paris.
- RAINWATER, L. and T.M.SMEEDING (1999), "From 'Relative' to 'Real' Income: Purchase Power Parities, Household Income Microdata, Problems and Prospects", *Papers and Final Report of the Third Meeting on Household Income Statistics* (Statistics Canada), pp. 139-163.
- RESEARCH EXPENDITURE FOR HEALTH SCIENCE. (2002), *A Study of Income Differentiation in Contemporary Japan*, National Institute of Population and Social Security Research National Institute of Population and Social Security Research, Tokyo.
- WHITEHOUSE, E. (2001), *Modelling the rules of public and occupational pensions in nine OECD countries*, <<http://www.oecd.org>>. See theme 'Ageing Society'.
- YAMADA, A. (forthcoming), "Economic Position and Income Inequality among Japanese Older People; A Measurement by Quasi Public Assistance Standard", *Review of Population and Social Policy* Vol. 10.

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