Chapter 2

The role of housing, financial wealth and public services for adequate living standards in old age

Chapter 2 examines adequacy of retirement incomes from a wider perspective than pension entitlements of current and future retirees. As living standards in retirement are also influenced by a range of other factors, the analysis looks at the role that housing wealth, financial wealth, and the value of publicly-provided services play on the adequacy of elderly people's incomes.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

Change on all fronts – demographic, economic, social, and financial – has compelled OECD countries to reform their pension policies. As the financial and economic crisis has added to the pressures of population ageing, many have undertaken fiscal consolidation policies that include the retrenchment of public pension systems and lower entitlements for current and future retirees alike.

As public pension systems are, and in many countries will continue to be, the backbone of retirement income, workers will need to adapt by working longer and saving more if they are to enjoy adequate standards of living in retirement. Those who cannot or will not risk losing out. Among the "cannots" are people who have already retired or are about to do so because working longer or even returning to the labour market is not an option for many of them.

While there is broad agreement that pension systems should aim to provide adequate retirement incomes, there is much less consensus on exactly what an adequate retirement income is. This chapter examines the various definitions of adequacy used in OECD countries and how it is measured. While the level of pension benefits provided by a public or private pension system is, of course, the prime determinant of retirement-income adequacy, there are other resources, too, providing additional incomes or benefits to retirees.

Most retirees in OECD countries own their homes. Unlike people of working age, older homeowners have generally paid off their mortgages and have substantial savings on which they draw to support consumption during retirement. Publicly provided goods and services – such as healthcare and long-term care – can also be particularly important for retirees.

This chapter seeks to shed greater light on how housing, financial wealth, and publicly provided services contribute to maintaining adequate standards of living in retirement. In doing so, it draws on internationally comparable data. Unfortunately, such data are often available for small groups of countries only and are not collected frequently enough to yield a clear, up-to-date picture of how sources of income other than pension benefits help sustain adequate standards of living in retirement. Nevertheless, this analysis – the first of its kind – can inform the debate on the adequacy of retirement-incomes by examining some patterns of elderly homeownership and wealth holdings and exploring the importance of a public service provision.

Adequacy

What constitutes adequacy?

Defining the adequacy of pensions is a difficult task. The term "adequacy" is itself politically loaded, especially when applied to social benefits. It is also contentious, as there is no single definition of what an adequate level should be or what constitutes an adequate retirement income in a broader sense.[1]

A narrow definition considers that retirement income is adequate if it meets some absolute minimum level of resources in old age – which will differ across countries and over time, of course. A wider definition takes adequacy to mean meeting the monetary and non-monetary needs of a retired person through a range of policies. The broadest definition – and likely the one closest to an individual's perspective – deems a retirement-income adequate if it replaces a worker's earnings at a level which enables him or her to maintain a standard of living in retirement comparable to that enjoyed in working life – even though retirement incomes often do not just replace earnings.

This diversity of perspectives is reflected in the range of indicators used to assess retirement-income adequacy. Narrow-definition indicators measure old-age income poverty, both in absolute and relative terms.[2] Those that measure the wider definition of adequacy combine monetary and non-monetary metrics, such as material deprivation and risks of social exclusion. Both types of indicators, calculated from data collected in household surveys, are backward-looking and available only after a certain time lag.

The pension replacement rate, expressed as a percentage of earnings, is commonly used to determine to what extent living standards are maintained over retirement. It is a measure of the income that a country's pension system seeks to provide to its retirees and is calculated using national pension system rules.[3] The replacement rate can express adequacy from an individual perspective, i.e. related to a person's previous earnings, or from a societal perspective – related to average economy-wide earnings.

Most countries offer the elderly safety-net benefits – such as targeted, basic or minimum pensions – to prevent, or at least alleviate, poverty and ensure that people who have contributed to a pension system receive a minimum benefit in return. A comparison of such benefits across countries delivers insights into national strategies for retirement-income adequacy.

This chapter seeks to paint a more complete picture of the adequacy of retirement incomes by enriching the perspective on future replacement rates with measures of old-age poverty and other sources of retirement income.

Monetary and non-monetary dimensions of adequacy

Monetary and non-monetary dimensions should both be factored into any attempt to gain a clear picture of retirees' living standards today and whether they can be considered adequate.

Monetary adequacy is assessed by measuring income or expenditure. While a range of factors shapes well-being, income is the most obvious way to gauge whether pensioners risk slipping below the minimum decent living standard. Economic well-being is traditionally determined by measuring the income of individuals, households or families over a given period of time – be it a week, a month, or a year.

The concept of income can be limited to cash. But it may also incorporate the value of publicly provided services such as healthcare and long-term home care. And it can extend to cash-equivalent benefits, as may old people save money over their working lives and/or possess assets such as their own homes.

Another monetary adequacy metric is individual expenditure – an approach that has both advantages and disadvantages over income. Although expenditure is usually more stable over time, it depends on habits, preferences and country-specific circumstances

and, therefore, may be less internationally comparable. Expenditure is also more prone than income to measurement errors, being difficult to record accurately. Similarly, aggregating weekly, monthly or quarterly expenses into an annual variable is no easy task.

However, people's living standards also depend on the number, type and frequency of "special" needs that they may have. For example, poor households having one or more sick or disabled members are more likely to be worse off than households with the same income whose members are all healthy.

Recognising that there are several dimensions of (in)adequacy leads to an interest in material deprivation. People may experience different forms of deprivation, most of which are not captured by the analysis of income alone.

Measuring adequacy of living standards

Cash and non-cash income

A wide concept of income requires defining the components that should be included. A comprehensive definition derived from Haig-Simons might describe income as equal to the value of a person's annual consumption, plus the net change in the (real) value of his or her wealth.[4] Such a definition would include income in kind (e.g. the value of accommodation in owner-occupied housing) and the net increase in the real value of a person's assets. It would also implicitly refer to non-recurring sources of income.[5]

The standard statistical method of measuring income, however, differs from the Haig-Simons definition in two important ways. First, it ignores accrued capital gains. Household surveys generally measure only capital gains that have been realised by selling assets and have thus generated income.[6] Second, it does not take into account the effect of inflation, even though rising prices may devalue assets.

In practice, measuring how much wealth and other non-cash components contribute to household incomes is complex. Wealth consists of a broad range of assets, both tangible and intangible. Tangible assets are financial (e.g. cash deposits, stocks, life insurances, bonds, mutual investment funds, private pensions) and real (e.g. housing, cars, gold, jewellery). Examples of intangible assets are the benefits from in-kind services and social and human capital.

Measuring housing wealth and comparing it across countries is particularly complex. Homes are both an asset and consumption good, but there is a lack of suitable data both on how to value the good and how to calculate so-called "imputed rent" – the cash value of the benefit that owners derive from living in their own home. Countries use different data and methods to calculate imputed rent, as discussed in detail below in the section on "Homeownership in retirement incomes: The concept of imputed rent". Housing wealth is also less liquid than other assets because owners who wish to liquidate their homes may face transactions costs, frequent problems of indivisibility, and mortgage prepayment penalties. Altogether, housing is more difficult to measure than other types of investments when it comes to turning it into a stream of income.

Finally, valuing public services is no straightforward matter either, since there are no market prices attached to them (Verbist and Matsaganis, 2012). Many studies use actual cost of production to proxy public services' (monetary) value, as it is relatively easy to determine the cost of the inputs. Another advantage of cost of service production is that it is free from the subjective assessments of recipients.[7] Therefore, and because it is the only method for which reliable data are available, it is the most widely used.

If a view of different wealth resources and the income streams they generate is to be comprehensive, it should factor in taxation. Income may be measured in gross or net terms, i.e. before or after income tax, wealth tax, social insurance contributions, and transfers between households. The characteristics of national tax-benefit systems influence the disposable income available to people and thus affect assessments of adequacy. While good cross-country information on tax-benefit systems is available,[8] similar information on the taxation of different types of assets is lacking.[9]

A further important aspect of measuring income is the nature of the income unit – single individuals or larger entities such as households. As most individuals do not live alone, their incomes are pooled wholly or in part to satisfy a household's needs. Household rather than individual income is, therefore, a natural starting point to analyse adequacy. However, even though poor living standards rarely affect some members of a household and not others, it can be useful to home in from the household to the individual level (Atkinson et al., 2002; Förster and Mira d'Ercole, 2009). To reflect the individual's perspective while considering economies of scale within a given household/family, equivalence scales are used.[10] These allow for the fact that a household's needs to do not grow proportionally to the number of family members and differ according to whether members are adults or children.

Measuring poverty

The narrow definition of retirement-income adequacy underlies the assessment of poverty among the elderly. One of the greatest successes of social policy across the OECD in past decades has been the fall in old-age poverty. It is still high on all policy makers' agendas, however, as some groups of old people are highly exposed to the risk of poverty. Examples are the oldest old, in particular women, and those needing long-term personal care.[11]

The pension reforms of recent decades have widely cut benefit entitlements for today's labour market entrants, while working careers are less stable than in previous generations. Monitoring and preventing old-age poverty now and in the future is therefore an ongoing policy concern.

Poverty may be measured in both absolute and relative terms. In simple terms, poverty is benchmarked against different minimum incomes and standards of living, shaped by national traditions, political processes and economic performance. Benchmarking countries' poverty against common arbitrary thresholds makes it possible to identify patterns that are common to all countries (Förster, 1994).

Absolute poverty. Absolute poverty metrics rest on the idea that people require a certain level of resources (or goods and services) to enjoy a minimum standard of living. People living with less than that level and therefore below the minimum standard of living are considered poor. Absolute poverty thresholds are commonly based on measurements of household budgets. Although the notion of a poverty threshold is easy to understand, it is not so straightforward to compare them across countries. The basic basket of goods and services that keeps people above the poverty line does not contain the same items from one country to another. The most obvious example is heating expenses, which are higher in cold countries than in warm ones. Moreover, individual perceptions tend to change with income, which suggests that the meaning of poverty changes, too (Fisher, 1995; Madden, 2000). Box 2.1 explains in greater detail some of the main approaches to measuring absolute poverty.

Box 2.1. **Absolute measures of poverty**

One of the first indicators of absolute poverty was created by the British Rowntree in 1901. The Rowntree line used a basket of goods and services deemed essential to ensure the minimum subsistence level for the unit of analysis – the household or family – under scrutiny. He set his threshold using the monetary value of the basket plus a fixed amount of money to cover other types of expenditure, such as fuel or housing. He classified every household whose income was less than that amount as poor. His method was criticised chiefly for the choice of goods and services (other than food) in the basket.

Another absolute poverty measure is the one still used in the United States, based on the poverty line set by Molly Orshansky (1963-65). Orshansky calculated her poverty threshold by multiplying by three the cost of a minimum food budget – as determined in the Economy Food Plan – for different family sizes. She borrowed the multiplier of "3" from the Department of Agriculture's 1955 Household Food Consumption Survey, which estimated that families of three or more spent about one-third of their income (after tax) on food in that year. This poverty threshold is still indexed every year to the consumer price index and has not changed in any major way since it was initially formulated (Orshansky, 1965, 1969).

Orshanky's method does, however, have some technical flaws. One is the unit of analysis retained, i.e. the family. Consequently, it considers cohabiting couples as distinct units of analysis and does not pool their resources. In addition, recent estimates show that food expenditure accounts for around one-sixth of family income, not one-third as assumed in the metric, which suggests that the multiplier should also be adjusted regularly to account for changing consumption patterns. Finally, the Orshansky indicator does not include some components that matter for determining disposable income, such as the value of some in-kind benefits and some expenses regarded as crucial by most families. Since 1969, several committees and task forces have discussed the question of the adjustment of the poverty threshold.

Another alternative, widely used method, drawn from the World Bank's work on poverty, considers USD 1.25 per person per day as the value of resources needed to stay above the poverty line. Anyone who lives on less than that daily amount is deemed poor. This estimated poverty line, expressed in 2005 USD PPP, results from the average of the national poverty lines of a sample of poor countries.

Other measures use the minimum income standard (MIS) approach (Bradshaw et al., 2008) or reference budgets (see *www.referencebudgets.eu* and Vrooman, 2009). The MIS approach for example, tries to blend the best of the methodologies for developing budget standards in the United Kingdom – the Family Budget Unit (FBU) and the Consensual Budget Standard (CBS). Under the FBU approach a panel of professional experts constructs budget standards, while the CBS is drawn up by ordinary people. The CBS approach considers that negotiation and agreement are necessary to defining a minimum standard. The conclusions of the MIS project suggest that such a methodology should be used as a complement to other poverty measures to improve understanding of poverty conditions. For example, traditional poverty measures in the United Kingdom have generally underestimated the needs of families with children and overestimated the needs of pensioners after housing costs are taken into account.

The reference budgets approach looks at typical expenditure patterns for different household types to measure the cost of a set of lifetime primary items which it considers sufficient to support a decent life style. The basket of basic consumption items is built by surveying the goods and services which appear to be the most fundamental to health or physical autonomy. Its advocates emphasise, in particular, its usefulness as a guideline for the design and delivery of welfare allowances and services (Nordenanckar, 2009) and as a benchmark for comparing household incomes with consumption needs.

Absolute poverty measures may differ with the size and composition of the unit of analysis (household, family, individual). Comparisons across countries need to factor in purchasing power parity (PPP) and use the same basket of products as reference.

Relative poverty. To what is relative poverty relative? There are two benchmarks:

1. *Average income*. The poverty line is expressed as a percentage of average income and therefore depends on the distribution of household incomes.

2. *National living standard*. The poverty line is measured against the living standard norm that prevails in a given country at a certain moment in time. A person considered poor in a rich country will therefore have a higher income than many non-poor people in a less prosperous one.

In practice, relative poverty thresholds are proportional to either average (mean) or median income. Median income is more widely used, being less sensitive to outliers. The OECD, for instance, most of the time sets the poverty line at 50% of median equivalised income. Anyone whose income is less than 50% of the median equivalised income is said to be "at risk of poverty". The European Union uses a 60% cut-off point (before housing costs),[12] while lower thresholds give rise to what is sometimes termed "severe poverty" measures (Brewer et al., 2010).

The indicator most commonly used to measure the *extent* of relative poverty is the "headcount ratio", which simply shows the percentage of the population with incomes below the poverty threshold. A headcount ratio in the late 2000s revealed that 12.8% of the over-65s were poor in the OECD area (Figure 2.8). The number does not, however, say anything about *how* poor people who languish below the poverty line are. The *depth* of poverty is captured by the poverty gap indicator which measures how far below the poverty line the median income of the poor lies (Figure 2.9).

Material deprivation. Poverty indicators are supplemented by measures of material deprivation that address the non-monetary aspects of poverty. They use checklists of items drawn from responses to surveys on what is necessary or desirable for decent living standards. Again, views differ on the types and number of items that constitute an adequate standard of living. The result is that, for a single country, there may be different assessments of its degree of material deprivation.

The European Union's material deprivation indicator, for example, measures the share of respondents to surveys who cannot afford to do at least three of the following:

1. Face unexpected expenses.

2. Take a week's holiday away from home every year.

3. Pay off arrears (mortgage, rent, utility bills, or hire purchase instalments).

4. Eat a meal with meat, fish, or protein equivalent every second day.

5. Keep home adequately warm.

6. Have a washing machine.

7. Have a colour TV.

8. Have a telephone.

9. Own a car.

Respondents to surveys who cannot afford to do four or more of the nine things listed are considered "severely materially deprived" (Guio, 2005, 2009; Guio et al., 2009).[13]

Among other definitions of material deprivation are, for example, the composite index of Carstairs and Morris (1991) built on a combination of four indicators: male unemployment, low social class, car ownership, and overcrowding in the home. Other indicators also consider subjective dimensions of deprivation, such as the quality of social networks and life satisfaction indices (Boarini and Mira d'Ercole, 2006).

Many non-EU countries also measure deprivation to complement their analyses of monetary poverty. Australia, for example, as stated in Saunders and Wong (2012) draws on the deprivation approach to help identify "those who do not have and cannot afford items regarded as essential by a majority of Australians" where "essential items are things that no-one in Australia should have to go without today". The list in Saunders and Wong (2012) comprises 17 items, ranging from clothing, medical needs, housing, social participation, and savings to car insurance and holidays. The authors stress that the list reflects community views rather than the decisions of experts and researchers.

Two Canadian jurisdictions (Ontario and the Yukon) have surveys to measure material deprivation from a list of items that range from nutrition and clothing to housing and transport. For example, the 2008 Ontario material deprivation survey (OMDS) prompted respondents who did not possess listed items to state whether it was because the household could not afford them.

Household surveys in the United States and New Zealand, include questions on similar items to measure deprivation (Kenworthy, 2007).

One survey, the Pew Global Attitudes Project, provides comparable cross-country information on a few aspects of material deprivation (inability to buy food for the family, inability to pay for medical and health care for the family and inability to buy clothing the family). It covers around 38 000 people in more than 40 countries (see Boarini and Mira d'Ercole, 2006).

Pension replacement rates

The broad view of adequacy – that in retirement people should enjoy a certain standard of living comparable to the one they had during their working lives – naturally leads to the pension replacement rate as a measure. The pension replacement rate measures the level to which a pension (public, private or both) in retirement replaces earnings from working. It may be expressed in either gross or net terms, i.e. with or without taxes and social security contributions.

An important issue in constructing the indicator is the choice of the income to be replaced. The replacement rate is widely defined as the ratio of the pension to final earnings (just before retirement). *Pensions at a Glance*, however, shows pension benefits as a share of individual lifetime average earnings (revalued in line with economy-wide earnings growth). In the standard assumption of the OECD pension models, a person's income grows in line with economy-wide average earnings, which means that using the last or average lifetime income will yield the same result.

What level of replacement the pension replacement rate should target, is another important consideration. A simple starting point is to say that standards of living in retirement should be the same as those enjoyed during working life. But working-age people may have to meet a number of needs which retirees no longer have, such as transport costs or work-related expenses. And people who were low earners during their

working lives may need pension replacement rates of 100%, or even higher. Those who enjoyed higher earnings may still have a very comfortable retirement with replacement rates substantially below 100%.

Figure 2.1 shows OECD national net pension replacement rates (i.e. the ratios of pension benefits to earnings after taxes and social security contributions) for full-career workers entering the labour market in 2012 at average and low earnings relative to the economy-wide average. The pension replacement rates are therefore forward-looking and apply to the future entitlements assuming that current pension rules will apply throughout their career until they reach the standard pension age in their country. Countries with the highest net pension replacement rates for low earners are Australia, Denmark, Israel, the Netherlands and Turkey – all above 100%. Countries whose replacement rates are well below the OECD average are Germany, Japan, Mexico, Poland, and the United States, where low earners' pension benefits replace only between 50% and 60% of their pre-retirement earnings.

Figure 2.1. **Theoretical net replacement rates at different earnings levels for full-career workers entering the labour market in 2012, OECD**
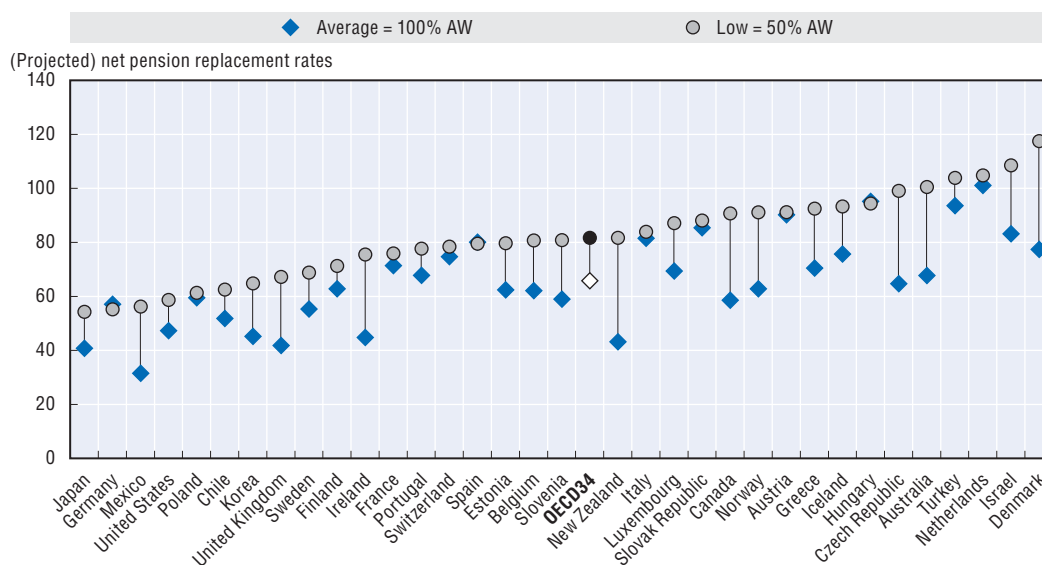
Note: "Average" and "low" earnings levels refer to 100% AW and 50% of the AW respectively. See Chapter 7 in this publication.
Source: OECD pension models, see Table 4.7 on "Net pension replacement rates by earnings" in Chapter 4 in this volume.
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### Recipiency and take-up of minimum and target benefits

Rather than looking at future theoretical pension replacement rates this section focuses on how poorer pensioners are covered by some specific public pension programmes. As described in Table 3.2 in this publication, the first-tier redistributive schemes, which aim to prevent poverty in old age, are of three main types: resource-tested, basic and minimum. While all OECD countries have general social safety-nets of this type, in some cases their coverage is limited to few people who had many career interruptions.

The analysis of benefit values provided by these schemes is complicated by the existence of multiple programmes in many countries. In some cases, benefits from these schemes are additive. In others, there is a degree of substation between them.

On average, safety-net retirement benefits are worth 22.9% of average worker earnings. Eleven countries provide a minimum pension above this safety-net level. For full-career workers, the average retirement income – including these contributory minimum pensions – is 28.2% of average worker earnings.

About a third of older people receive some support from basic, targeted or minimum pensions on average. Data on coverage are presented in Figure 2.2 just for non-contributory safety-net benefits and contributory minimum pension.

Figure 2.2. **Recipiency of targeted and minimum pensions among people aged 65 and over, 2012**
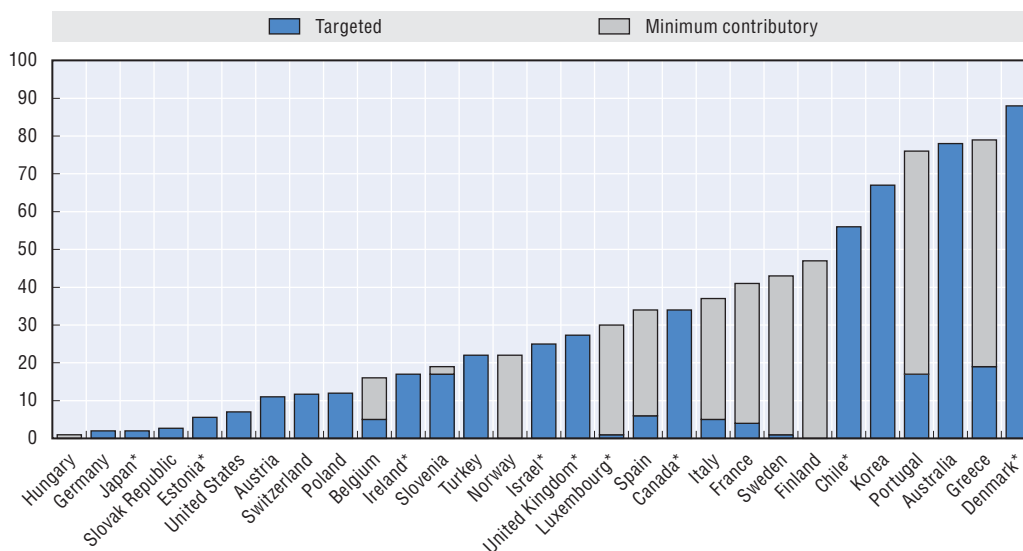
Note: The country-name followed by an asterisk indicates that the first-tier also comprises a basic pension.
Source: Indicator on "Basic, targeted and minimum pensions" in Chapter 3 in this publication.

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Where applicable, the chart distinguishes between "targeted" pensions and minimum contributory pensions, which are generally higher. In Denmark, at the top of the scale, nearly 90% of retirees receive safety-net benefits at levels up to 18% of the average wage. Recipiency is also high in Greece which allocates to nearly 20% of retirees targeted benefits at a level equivalent to about 14% of the average wage. At the same time, around 60% receive the contributory minimum pension, which is 36% of the average wage. (Portugal shows very similar shares of recipients and benefit levels.) The Greek percentages are additive, which means that some three-quarters of pensioners receive one or other type of safety-net benefit.

Recipiency is also widespread in Australia (where nearly 80% of the over-65s receive resource-tested benefits) and in Finland and Sweden, where beneficiaries of minimum pensions account for over 40% of the over-65s. At the other end of the scale, no more than 2% of retirees in Germany, Hungary, Japan and the Slovak Republic receive targeted or minimum pensions.

The value of safety-net benefits – in both gross and net terms – has so far been compared with economy-wide average gross earnings. But this is not a good measure of adequacy of these benefits. Taxes and contributions payable on earnings are very likely to make a difference to the comparison of living standards on safety-net retirement benefits compared with those of workers.

Estimates for 22 OECD countries with data available suggest that on average, the level of the targeted pension benefit is worth 26% of average net earnings compared with just 19% of average gross pay. Higher contributory minimum pensions average 33% of net earnings and only 25% of gross.

Finally, the comparison of the net-of-tax value of safety-net benefits with the poverty thresholds suggest large differences across countries. For example, in Slovenia the net targeted and minimum pension benefits were worth around 40% and 93% of the poverty threshold in 2008, respectively. In Belgium, in contrast they were both above 100% of the poverty threshold (see Whitehouse et al., 2011).

An important issue in many countries is the take-up (or rather the non-take-up) of means-tested benefits. Through stigma, ignorance of eligibility, and the cost and complexity of claiming, less than 100% of those entitled to such benefits take them up. In the United Kingdom, for example, figures for 2009-10 show that only between 62% and 68% of people eligible for the means-tested pension credit took it up. However, take-up is estimated to cover 73%-80% of the amounts to which people are entitled, suggesting that those with smaller entitlements are less likely to make a claim. Take-up also appears to be increasing over time: it accounted for 58%-66% of the caseload in 2003-04 and 68-76% of total entitlements, according to the British government's Department of Work and Pensions (2006, 2010).

Matsaganis et al. (2010) supply some recent evidence for Greece and Spain. Their best estimates are a 63% non-take-up of the social solidarity benefit in Greece, both by caseload and aggregate benefit amounts. For the pension payable to the uninsured elderly, non-take-up was estimated to be between around 29% and 46%. Again on the authors' best estimates, the supplementary pension in Spain shows a take-up rate of less than 10%, while the non-take up of the non-contributory minimum pension is around 44% of those entitled and 41% by expenditures.

Low take-up is also a problem in the United States, where only 61%-68% of older people entitled to the means-tested benefit – the supplemental security income (SSI) – were actually receiving it in 2001 (Government Accountability Office, 2005). Further evidence suggests that while the take-up of SSI for disability reasons continued to increase over time (Elder and Power, 2006), it declined among the over-65s by about 20 percentage points over the period 1974-2004. Canada boasts the highest take-up rates for its means-tested benefit among the elderly, the guaranteed income supplement at around 87% according recent estimates.[14] (On take-up rates, see Wiseman and Yèas, 2008; Poon, 2005; Currie, 2006.)

Living standards in retirement: Incomes and poverty in old age

Snapshot of elderly incomes in the OECD

An at-a-glance idea of pensioner well-being can be gleaned from looking at the average income of the elderly in relation to the overall population's. Figure 2.3 shows the relative average mean equivalent income of the over-65s, remarkably similar across countries

Figure 2.3. **Relative incomes of the over-65s, late 2000s**

Equivalent household disposable income
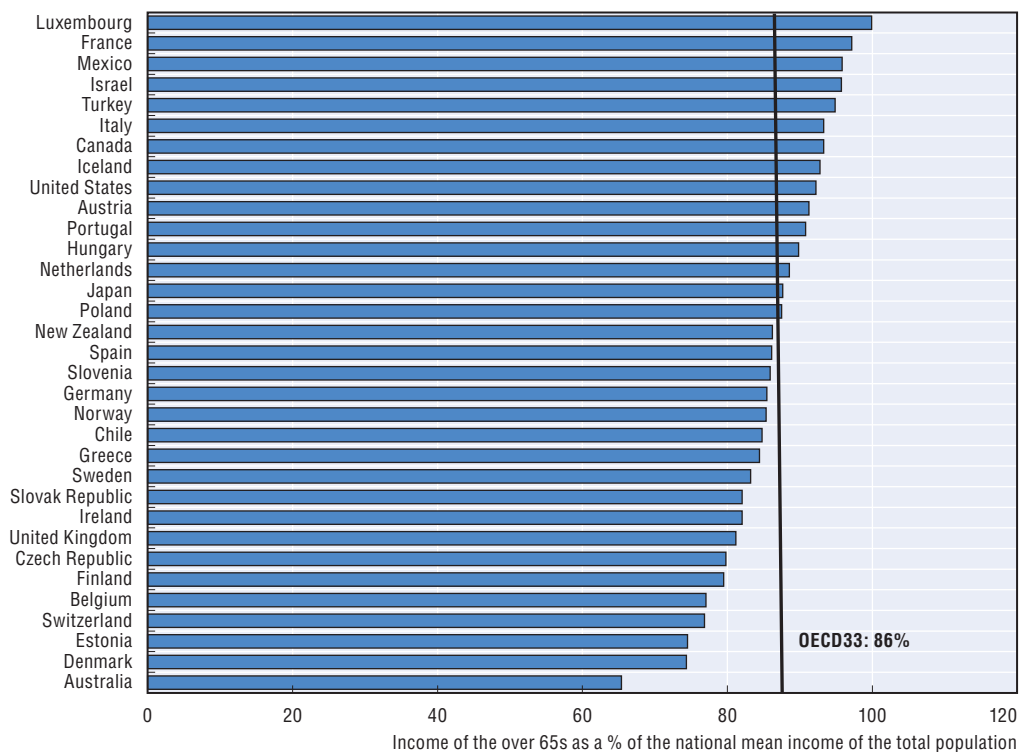
Source: Authors' calculations from data from the *OECD Income Distribution Database, www.oecd.org/social/income-distribution-database.htm.*

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despite the diversity of retirement-income systems. In the late 2000s, elderly incomes in two-thirds of OECD countries accounted for an average of 86.2% of the total population's. They stood at above 93% in Austria, Canada, France, Iceland, Israel, Italy, Luxembourg, Mexico, Portugal, Turkey, and the United States. In three OECD countries – Australia, Denmark and Estonia – they were less than 75% of the national average equivalent household disposable income.

Sources of elderly incomes

Analysis of the sources of old people's income yields further insight into their living standards. Figure 2.4 shows that during retirement they rely heavily on public pensions in the form of earnings-related or resource-tested benefits which account for an average of nearly 59% of their incomes in the 34 OECD countries. At the top end of the scale are Austria, Belgium, Finland, Hungary, and Luxembourg where public pensions make up 80% or more of elderly people's retirement income. By contrast, the figure is 40% in Australia and Canada, and less than 20% in Korea and Chile.

In Chile, Korea and Mexico, the over-65s receive more than half of their income from work, followed by Japan with 44% and Estonia, Slovenia, Turkey, and the United States not far behind. High shares of work-sourced income may reflect the fact that many elderly people do not have full contribution histories in public pension schemes and, being entitled to low or no benefits, they keep working.

Figure 2.4. **Sources of incomes of the over-65s, late 2000s**

Percentage of gross household income
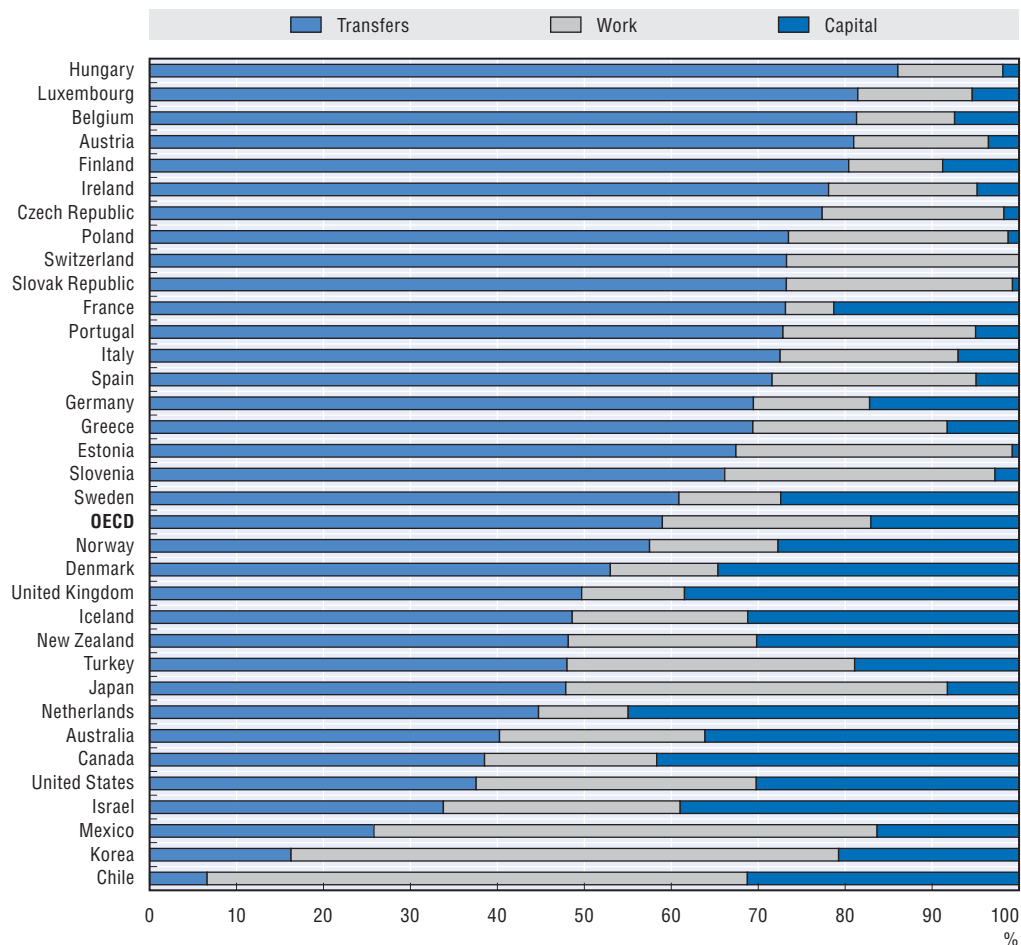
Note: Income from work includes both earnings (employment income) and income from self-employment. Capital income includes private pensions as well as income from returns on non-pension savings.
Source: Authors' calculations from data in *OECD Income Distribution Database, www.oecd.org/social/income-distribution-database.htm.*

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Alternatively, later retirement ages may be the main factor. In 2010, for example, the share of income from work was relatively high in the United States where the normal pension age is over 65. In France, by contrast, where workers who had contributed for 41 years could still retire at the age of 60 in 2010, income from work accounted for less than 10% of old people's incomes.

Capital – mainly in the form of private pensions – provides the over-65s with between 30% and 45% of their incomes in Australia, Canada, Chile, Denmark, Iceland, Israel, the Netherlands, New Zealand, the United Kingdom, and the United States, all countries whose retirement income systems combine public and private pensions.

Generally speaking, poorer old people rely almost exclusively on public transfers, while richer ones derive large shares of their incomes from work or private pensions and other capital income. However, there are OECD countries, like Mexico and Korea, where

Figure 2.5. **Sources of income of the over-65s by income decile, late 2000s**
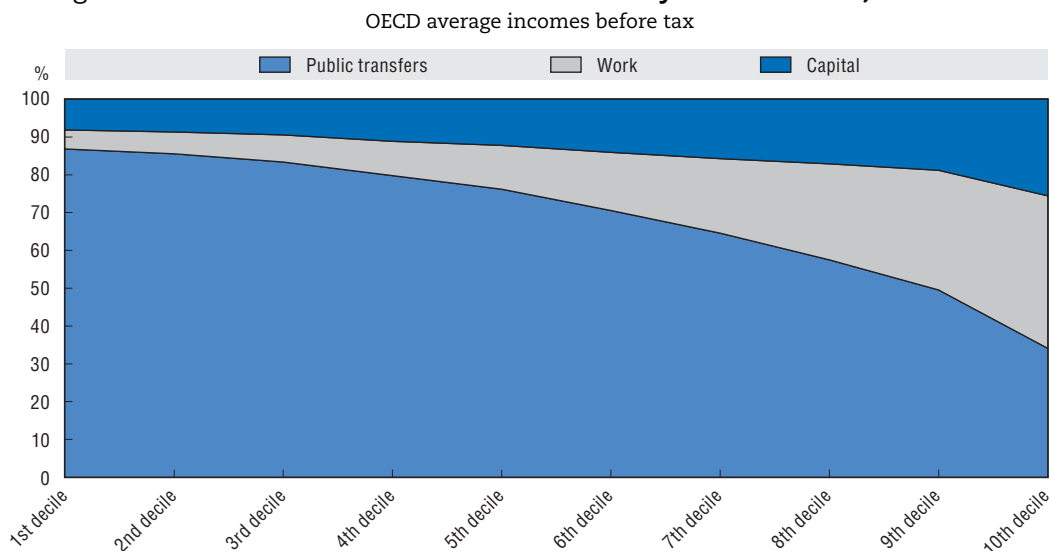
OECD average incomes before tax

Note: Income from work includes both earnings (employment income) and income from self-employment. Capital income includes private pensions as well as income from returns on non-pension savings.
Source: Authors' calculations based on data from the *OECD Income Distribution Database*, *www.oecd.org/social/income-distribution-database.htm*; OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, *http://dx.doi.org/10.1787/9789264119536-en*; Suchomel, M., A.C. D'Addio, A. Reilly and E. Whitehouse (2013), "Income Inequality in Old-age Over Time in OECD Countries: Trends and Determinants", *OECD Social, Employment and Migration Working Papers*, OECD Publishing.

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work accounts for a considerable share of the income of pensioners who are in the lowest decile of the income distribution (Figure 2.5) (Förster and Mira d'Ercole, 2005; Disney and Whitehouse, 2001).

Figure 2.5 shows the average income shares of the elderly by decile of the income distribution in OECD countries. The share of work-based income grows from less than 5% among the lowest 10% of incomes to just over 40% in the highest decile. The distribution of capital income is also skewed towards the richer income groups, albeit to a lesser extent than income from work. Public transfers, in turn, account for more than 85% of income in the poorest decile and less than 40% in the richest.

The share of work-sourced income peaks in the 8th or 9th deciles in Australia, Greece, Iceland, Mexico, New Zealand, and Portugal, where the richest 10% of the over-65s enjoy larger incomes from capital, which includes private pensions, than those in the deciles just below (Suchomel et al., 2013).

Conversely, the share of capital income diminishes among the richest group of older people in Chile, Korea, Mexico, and Turkey. In the first two countries, income from work drives the overall picture, while Mexico is unique in having a higher share of public transfers in the top decile of incomes than in those immediately below. This result is probably linked to the high pension benefits of the pre-reform public pension system. The picture is most complex in Turkey where both capital and work show a U-shaped pattern, accounting for the highest proportional share of incomes in the lowest and highest deciles. The implication is that older people in the middle of the income distribution rely the most on public transfers (Suchomel et al., 2013).

Previous OECD analysis has also demonstrated that older people's incomes increased more sharply than those of the total population between the mid-1990s and the mid-2000s (OECD, 2008, 2013a) in 21 OECD countries for which data are available. Figure 2.6 illustrates the trend, comparing the relative incomes of elderly people in the late 2000s (x-axis) and mid-1990s (y-axis). In countries to the right of the 45° line, older people's incomes grew faster than those of the population as a whole. In those to the left, they did not.

Figure 2.6. **Trends in elderly incomes from the mid-1990s to late 2000s**

Percentage of total population income

The elderly saw the largest increases in their incomes relative to the total population's in Israel, New Zealand and Portugal – over 10 percentage points. There were also significant rises in the Czech Republic, Greece, Ireland, Mexico and Norway of between 7 and 9 percentage points. However, the rate of growth in their incomes fell behind the rises in population incomes in eight countries, with the largest fall-back observed in Chile.

While the coverage and maturity of pension systems are the main determinants of the increase in benefit incomes among the oldest old, the growth of real earnings over time, has benefitted each successive cohort of retirees who have received higher starting benefits.

Old-age poverty rates

Old people's economic well-being has widely improved in recent decades, as their relative incomes have risen and poverty rates dropped. The fall documented in earlier OECD work between the mid-1980s and the mid-2000s (OECD, 2008) continued between 2007 and 2010 (Figure 2.7). Over those three years, average income poverty in the

Figure 2.7. **Changes in poverty rates by age, 2007-10**
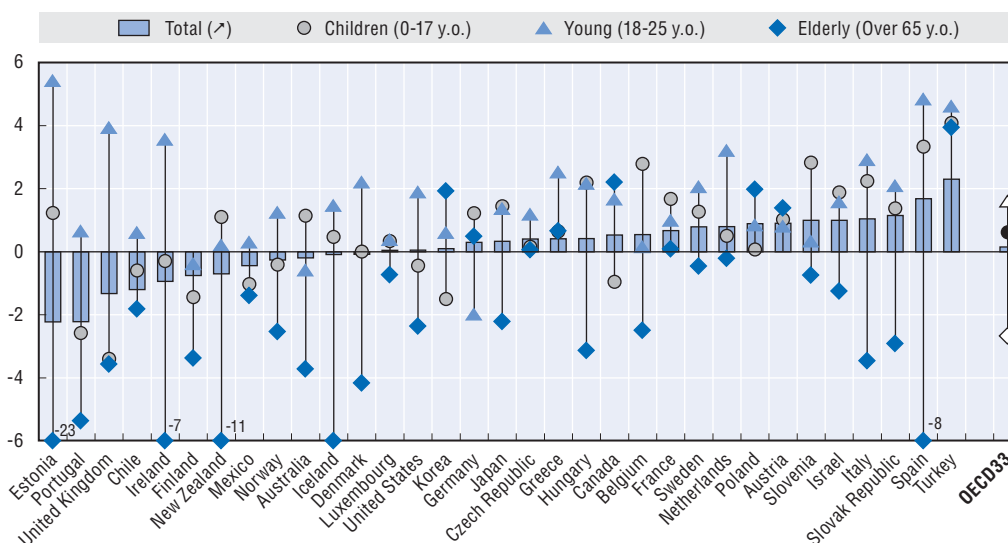
Note: Income poverty measured using relative poverty rate based on 50% of current median equivalised household disposable income.
Source: OECD (2013), "Crisis Squeezes Income and Puts Pressure on Inequality and Poverty. New Results from the *OECD Income Distribution Database*", *Policy Brief*, OECD, available at *www.oecd.org/els/soc/OECD2013-Inequality-and-Poverty-8p.pdf*.
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OECD rose from 12.8% to 13.4% among children and from 12.2% to 13.8% among young people. Among the elderly, however, relative income poverty shrunk from 15.1% to 12.8%, with falls in 20 countries and rises of around 2 percentage points in Turkey, Canada, and Poland only.

The risk of elderly poverty, measured against the threshold of 50% of the median equivalised household income, was less than 13% on average in the late 2000s in OECD countries. The poverty rate shown in Figure 2.8, however, captures only partially the risk of poverty in old-age because non-cash benefits such as the value of publicly provided services, are not included in the measure of income used. The percentage displayed in Figure 2.8 masks wide variations across countries: in the late 2000s, 25% or more of the over-65s were income poor in Australia, Mexico, Korea and Switzerland. The risk of poverty in old age was also above the OECD average in Chile, Greece, Israel, Japan, Slovenia, Turkey, and the United States.[15] By contrast, it was 5% or less in the Czech Republic, France, Hungary, Iceland, Luxembourg, the Netherlands, and the Slovak Republic.

Poverty measures can be very sensitive to changes in the minimum old-age and safety net benefits (Whitehouse et al., 2011) if they are close to the poverty line. Even slight changes in amounts may have a strong impact on the number of people considered poor or non-poor.

In Ireland in the mid-2000s, for example, the basic pension was EUR 8 870 while the poverty line stood at EUR 10 775. The increase in the state pension over time contributed to cutting by more than one-half the number of people in poverty between the early and late 2000s.

Figure 2.8. **Poverty rates among the over-65s**

Percentage of the over-65s with incomes below 50% of the median equivalised income
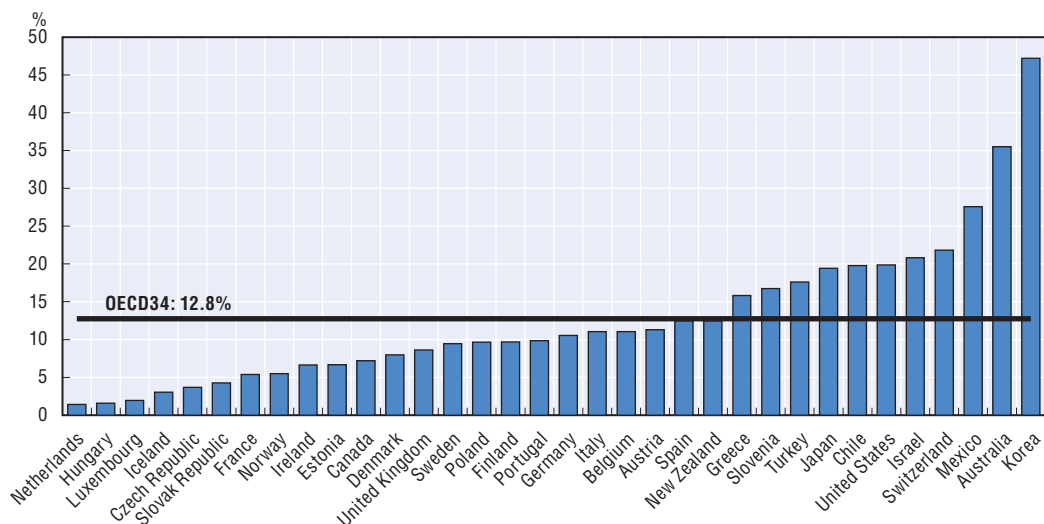
Source: Authors' calculations based on *OECD Income Distribution Database, www.oecd.org/social/income-distribution-database.htm.*

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In New Zealand, the rate of poverty among the over-65s increased from less than 2% in the mid-2000s to more than 12% in the late 2000s, with peaks in excess of 23% in the years between. This development was, however, linked less to the level of the universal old age pension than to earnings in the working-age population. As earnings grew rapidly during the period and the pension benefit was increased in line with prices, poverty among pensioners, measured relative to median earnings, increased.

The median at-risk-of-poverty gap

The median poverty gap illustrated in Figure 2.9 complements the headcount ratio with information on the depth of poverty. On average, the median income of the over-65s in the OECD area said to be "at risk of poverty" – i.e. with incomes below the 50% poverty line – was 18.4% below that line in the late 2000s. Differences across countries were substantial. Of the countries shown in Figure 2.9, the at-risk-of-poverty gap was widest in Korea, Ireland, Israel, Japan, Luxembourg, Mexico, and Turkey, where the elderly's median equivalised incomes were 30% and more below those countries' poverty lines. It was at its narrowest (at 5% or less) in Denmark and Norway (followed very closely by New Zealand). Wider-than-average gaps were also recorded in Austria, Chile, Iceland, Switzerland, and the United States.

The poverty gap can be partly explained by how low the safety net is strung. However, other factors underlie it, too. For example, although the data available are not broken down by gender, other studies have shown that poverty gaps are much wider among single females and women in general than among men. Because their retirement incomes are much more likely than men's to be low, women account for a majority of the poor population (Wolff, 2004).

Figure 2.9. **Median poverty gap among the over-65s, late 2000s**
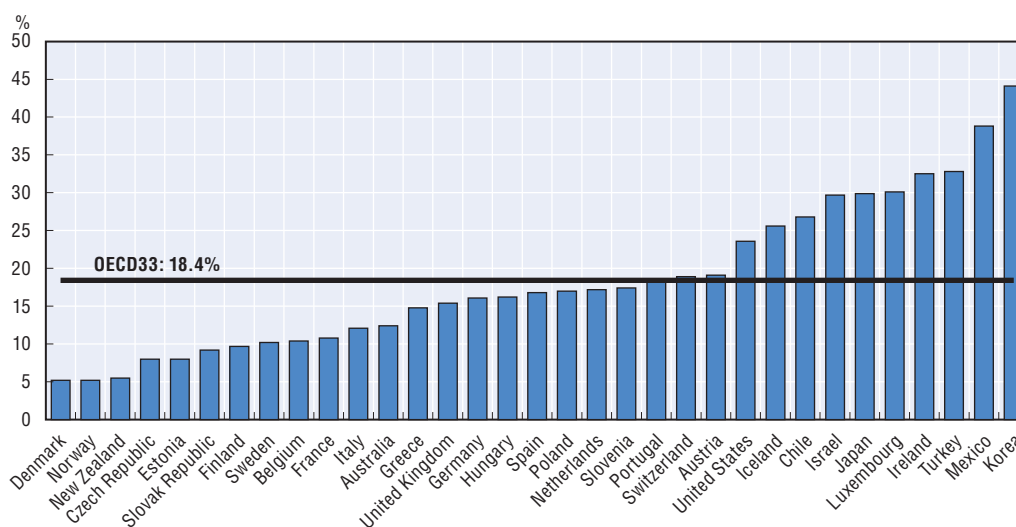
Note: Data for Hungary, Ireland, Japan, New Zealand. Switzerland and Turkey refer to the year 2009; for the Czech Republic data refer to the year 2011.
Source: Authors' calculations based on data extracted from OECD.Stat in the *OECD Income Distribution Database*, *www.oecd.org/social/income-distribution-database.htm.*

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Wealth and the adequacy of retirement incomes

To address the issue of adequate incomes, this section includes wealth in assessments of old-age income adequacy. For poorer retirees, public pensions and other income transfers are generally the only source of income. Other sources of income are private pension schemes and the workplace, since older people in many countries continue working to earn part of their retirement income. But that is not the whole picture. Housing wealth, financial wealth, and access to publicly provided services can also make substantial contributions to standards of living in retirement.

Concentrating solely on cash incomes may detract from the full retirement picture and, in some cases, overstate elderly people's exposure to the risk of poverty. Owning a house and living in it, for example, means less need for cash to pay the rent.

To capture the contribution of these other resources, this section extends the income concept used so far to include income flows which retirees might be able to generate by liquidating or otherwise using their assets.

Housing wealth

Housing is both a consumption and an investment good. Unlike other goods, which are consumed after being bought, a home needs upkeep. People who occupy their own homes need to spend money to sustain the value of their investment over time. A home is also a tangible asset which homeowners can partially or totally release to receive a stream of income or a lump sum to finance other needs, particularly during retirement. People who live in their own home enjoy the benefit of not having to pay rent, although the term "imputed rent" is used to quantify the Homeowner's Advantage over rent-paying tenants.

Elderly homeowners are widely supposed to belong to higher income brackets. Yet, although they may occupy their own homes and thus be asset rich, they might also be income poor if their cash income is not enough to meet their daily needs. As Figure 2.A1.1 in Annex 2.A2 shows, there is indeed a negative correlation between homeownership and poverty rates among the elderly. It is not statistically significant, however, which suggests that there is no straightforward link between standards of living and homeownership.

Homeownership has increased in most major OECD regions since the mid-1980s even though variations across countries are large (Andrews et al., 2011; Andrews and Caldera Sanchez, 2011).

The trend towards increasing homeownership may be explained partly by population ageing: older people are generally more likely to be homeowners. A study of 12 OECD countries (see Box 1 in Andrews et al., 2011) attributes up to 1 percentage point of the average growth in owner-occupation rates to ageing The effect of this demographic change on homeownership was most pronounced in Canada, Denmark, Germany, and Switzerland.

In order to assess the contribution of housing to the adequacy of retirement incomes, it is useful to look at homeownership by age group. Figure 2.10 shows that, on average, 77% of heads of household aged 55 and over are homeowners, compared to 60% in the under-45 age group. In Chile, France, Greece, Iceland, Slovenia, and the United States rates of homeownership in the older age group are between one-fourth and one-third higher. The gaps are much narrower in the Czech Republic, the Netherlands, Poland and Portugal.

Figure 2.10. **Homeownership rates among the under-45s and over-55s, 2011**
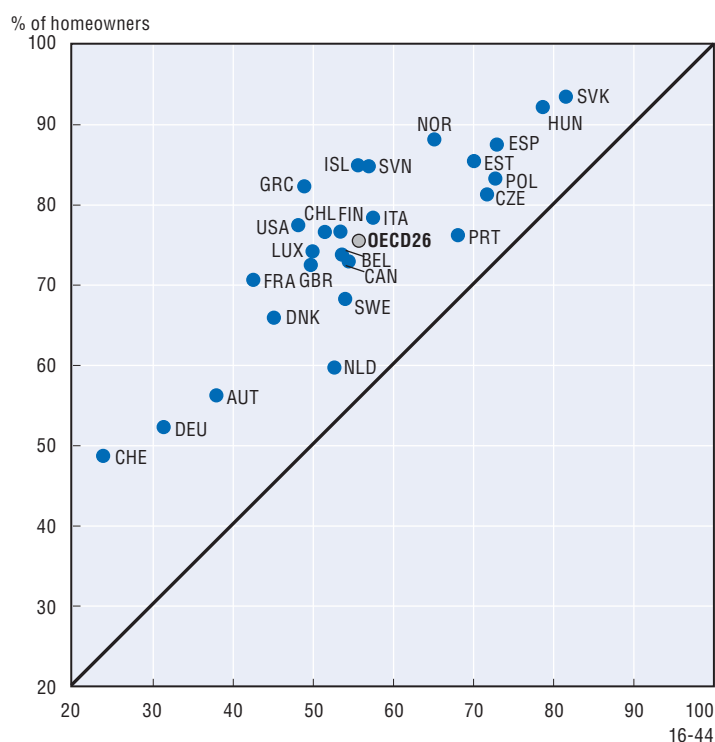

Source: EU-SILC Revision 1, March 2013; and Eurostat, *Income and living conditions* data, *http://epp.eurostat.ec.europa.eu/ portal/page/portal/income_social_inclusion_living_conditions/data/database*. For Canada, Chile and the United States, data are derived from national sources.

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Data for Japan suggest that in 2006 the rate of homeownership was 23% among heads of household aged up to 34 years old, against 85% among those aged 65 or more (Hirayama, 2010). Data based on the 2010 census suggests that, in Mexico, 76.44% of houses are owner-occupied and 14.3% rented (INEGI – Mexican Census and Geography Agency, 2011), but data is not available by age group. According to ENIGH (Mexican National Household Survey of Incomes and Expenditures), however, the percentage of owner-occupation reported is lower at 71.2% (Guerrero and Soto, 2012).[16]

Figure 2.11 illustrates tenure patterns among the over-65s in the 28 OECD countries with publicly available data. On average, around 76% of heads of household in this age group own their homes. Of the remaining 24%, those who rent their accommodation at market prices account for 15% and tenants who enjoy reduced rents or free accommodation (i.e. the "other status") represent 9%.

Figure 2.11. **Housing tenure among the over-65s aged in selected OECD countries, 2011**
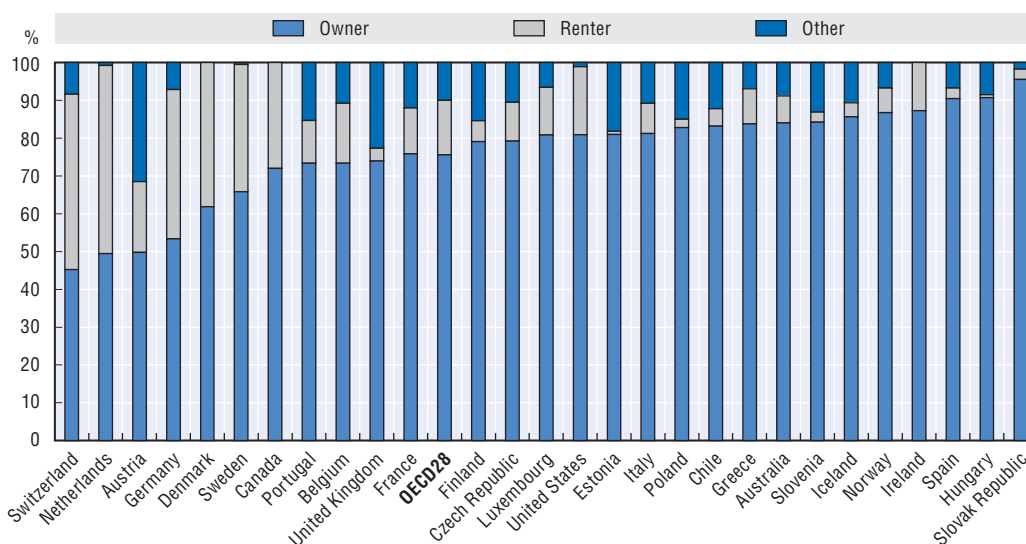
Note: The category "owner" includes both outright owners and owners who are still repaying a mortgage.
Source: Authors' calculations based on EU-SILC Revision 1 of March 2013. For Australia, Canada, Chile and the United States data are from national sources.

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The extent to which older people own their homes varies widely across countries. In Switzerland, just over 40% of older people are outright owners – having paid off their mortgages – compared to more than 90% in Hungary and the Slovak Republic. In Australia, Chile and the United States, around 80% of older people are homeowners, while the figure is 70% in Canada. Some of these homeowners are still repaying a mortgage. For example, 17% of elderly Canadians reported that their households were making regular mortgage payments in 2010 (Uppal, 2010). In 2011, among the over-65s who owned their homes, 6.5% were still repaying a mortgage.

Less than 5% are tenants paying rent at market price in many Eastern European countries, Iceland, Spain and the United Kingdom. In Denmark, Germany, the Netherlands, Sweden and Switzerland, the percentage is at least 30%.

Accommodation at reduced rates is frequent among older people in Austria, Estonia, Finland and the United Kingdom, as public housing accounts for a substantial share of accommodation for the elderly. However, reduced rate rents may mean totally different things in different countries. For example, in Finland the "other" category includes dwellings rented from municipalities, non-profit organisations and some residual categories. While in some towns (such as Helsinki), rent levels of municipal and non-profit housing are below the market price, in other parts of Finland they are higher.

Housing tenure among the elderly also varies with socio-economic factors, owners' income being a particularly important determinant. Figure 2.12, which depicts homeownership among the over-65s (measured with data from the European Survey on Income and Living Conditions) by income quintiles in 23 EU-OECD countries, confirms that those with low incomes are less likely to be homeowners. Similar figures are observed in many other non-EU OECD countries. In Canada, the percentage of homeowners among the over-70s rises from 52% in the bottom decile of the income distribution, to 80% in the middle decile, and to more than 90% in the top decile. In the United States, the percentage of homeowners (in the total population) increases from 42% in the bottom quintile, to 66% on average in the second and third quintiles, and 87% in the top quintile.

Figure 2.12. **Homeownership among the over-65s by income decile**
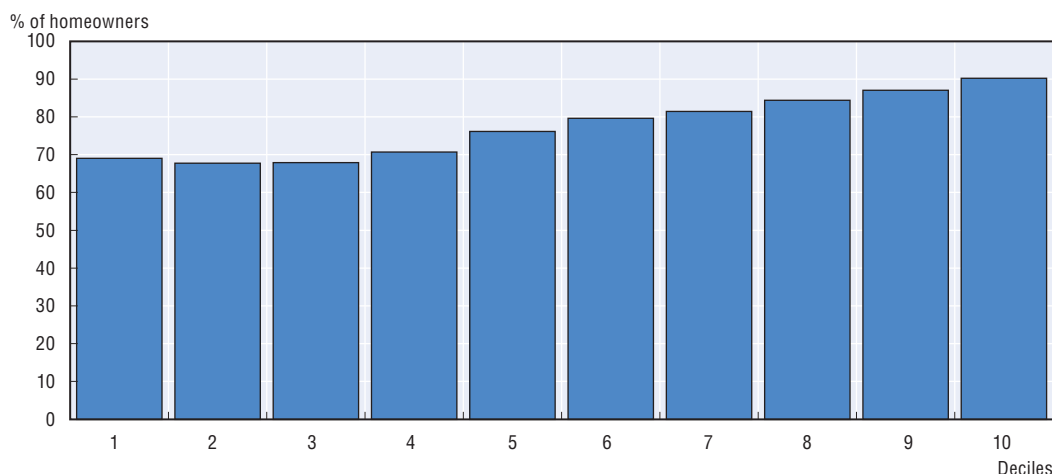
Source: Authors' calculations based on EU-SILC Revision 1 of March 2013 for 23 OECD countries for the year 2011.

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The share of elderly households with mortgages also increases with income. The number of households paying a mortgage is much lower in the lowest quartile of the income distribution than in the top income quartiles (Figure 2.13).

The housing cost burden is also unevenly spread across the income distribution. In the United States, for example, housing costs were, in 2011, 20% of household incomes among households with above-median incomes and 32% among moderate-income households – those with incomes of less than or equal to 50% of the area median income (Haas et al., 2012). The Australian Bureau of Statistics suggests that housing costs represent 26% of the incomes of households in the bottom deciles, 20% of those in the second and third deciles, and only between 10% and 15% of those in the higher-income deciles (ABS, 2013).

Figure 2.13. **Heads of households aged over 65 who are homeowners
and paying a mortgage in 23 OECD-EU countries, 2011**

By income decile
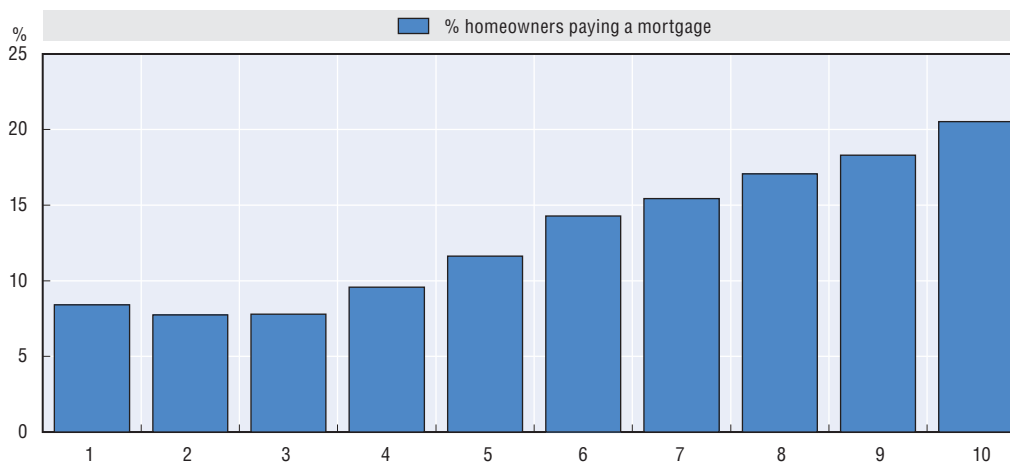
Source: Authors' calculations based on EU-SILC Revision 1 of March 2013.

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Research from the Australian Housing and Urban Research Institute (AHURI) also reveals that, in 2007-08, 61% of the low-income households in Australia who bought a house spent more than 30% of their income on mortgage costs in the first four years after purchase and that they would be shouldering the same financial burden 14 years later (Hulse et al., 2010). By contrast, mortgage payments represented 30% of the income of "only" 20% of higher-income households, a percentage that would drop to 8% after 14 years. Estimates by the Australian National Housing Supply Council on the basis of data for the years 2009-10 are very similar (NHSC, 2012).

Similar outcomes emerge from the analysis of the European Union's Survey on Income and Living Conditions (EU-SILC) for the year 2011. In some countries (Denmark, Sweden, and Switzerland) the elderly suffer proportionately more than younger people from the housing cost overburden – i.e. when housing costs exceed 40% of the homeowner's equivalised disposable income.[17] In Spain, by contrast, the opposite is true (Eurostat, 2013; see also Pittini, 2012).

The situation of low-income elderly homeowners is particularly relevant to the discussion on retirement-income adequacy. The location of the house also matters. Low-income elderly people are more likely to own property in neighbourhoods and on land of lower value with less chance of appreciation over time. They consequently have dimmer prospects of selling their homes or releasing housing equity. In this regard, the 2012 report of the European Mortgage Federation (EMF) suggests that the year-on-year price-increase registered in France in the first quarter of 2012 was related to the rise in housing prices in Ile-de-France, the Greater Paris area, while in the rest of the country they decreased (see EMF, 2012). Large regional variations in house prices ranging from 4% rises to 8% drops in property prices were also observed in Poland and the United Kingdom. The bursting of the bubble in real estate markets in many countries has obviously made the situation worse, in particular for lower-income households.

Bringing pensions, housing and old-age poverty together

A factor to consider in analysing the housing wealth of the elderly is how the generosity of the welfare state, in particular the pension system, may interact with homeownership (Fahey, 2004; Kemeny, 1992). Castles (1998) suggests that high levels of owner-occupation reduce the need for generous pensions. Accordingly, in less bountiful welfare states, people might invest in housing as a form of social protection, viewing homeownership as a means of securing their economic future (Kemeny, 1981, 2005). The "precautionary motive" also suggests that they may be aware of the relatively low old-age benefits provided by the state and so consider buying a house to secure future retirement income.

Using data from the OECD and the European Union, Figure 2.14 seeks to identify clusters of countries with respect to public pension expenditure, poverty, and homeownership among the elderly in the late 2000s. Public pension expenditure is taken as a proxy for pension generosity. It should be interpreted with caution, however, as high expenditure does not necessarily entail high pension benefits: people may actually receive relatively low benefits but have retired at an early age.

Figure 2.14. **Homeownership and pension expenditure**
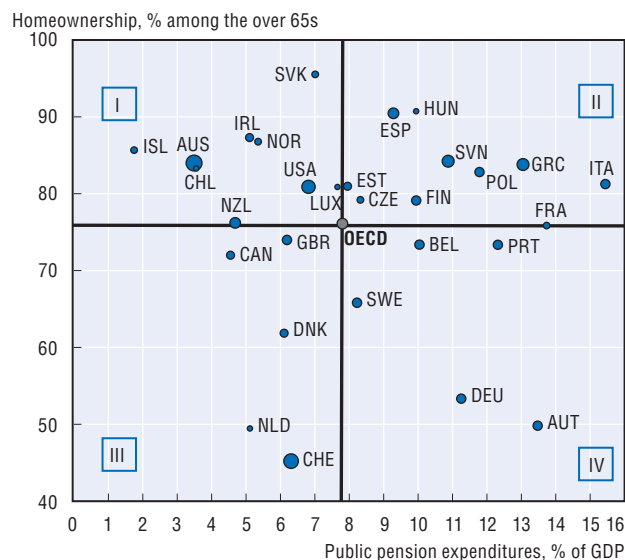
Note: All the data refer to the late 2000s.
Source: Authors' calculations based on OECD Income Distribution Questionnaire for the old-age poverty rates, on EU-SILC and national information for homeownership, and on Indicator 6.2 in Chapter 6 of this publication for public expenditure on pension.

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The size of the bubbles in the graph represents the scale of old-age poverty rates. Countries in the top-left quadrant – Australia, Chile, the United States, Iceland, Ireland, Luxembourg, and the Slovak Republic – show below-average levels of public pension expenditure and above-average rates of homeownership among the elderly. The rates of poverty among the elderly, however, differ substantially across those countries, as the different bubble sizes denote.

Countries in the top-right quadrant (II) boast above-average levels of both homeownership and public pension expenditure. With the exception of Hungary, where poverty among the elderly is low, their poverty rates are much more similar than in

quadrant (I). In the bottom-left quadrant (III), countries have below-average levels of public pension expenditure and homeownership and relatively low levels of poverty, the only exception being Switzerland. Finally, countries in the bottom-right quadrant (IV) show below-average levels of homeownership among the elderly combined with above-average public pension expenditure. In this group, Austria and Germany stand out.

Although Figure 2.14 does not depict them as such, some particularities characterise the countries represented. First, private pensions play a very important role in many of those in the first and third quadrants, while public pensions account for much of retirement incomes in most countries in quadrants II and IV. However, the size of the bubble seems smaller in countries with basic and minimum pension schemes (such as the Netherlands, Iceland, and Ireland) than in those with targeted pension schemes (e.g. Switzerland). Second, some of the countries in quadrant II (such as Portugal, Spain, Italy and Greece) are characterised by relatively low levels of social provision, while others represented in quadrants I and III have more liberal welfare regimes. Finally, there is a group of countries that stand out for their relatively low rates of elderly homeownership – Austria, Germany, the Netherlands, and Switzerland.

Significantly, what the graph also does *not* show is a clear nexus between housing and pensions. The inference that may be drawn is that other factors are more decisive in homeownership than retirement considerations and what people can expect to receive from pension systems. It also points to the difficulty of making housing wealth an important factor in retirement income policy. Homeownership is not distributed uniformly across populations, and national housing policies, individual preferences, and even local culture are probably powerful influences. Nor it is distributed evenly within populations, which makes the link between housing and pensions, if any, all the more difficult to establish.

The potential returns on and risks associated with housing investment also highlight the potential difficulty of including housing in assessments of the adequacy of retirement incomes. Large fluctuations in house-prices, such as those experienced during the financial and economic crisis, can dramatically and suddenly change the value of housing bought as a security against retirement, leaving retirees with little option but to change their financial retirement plans. Simulating the effect on household wealth of a 13.5% drop in housing prices (the size of the drop if 2005 housing prices were to return to their 2002-03 levels in the United States), Lusardi and Mitchell (2007) report that baby-boomers' properties would lose 10% of their total net worth on average.[18]

Homeownership in retirement incomes: The concept of imputed rent

The income stream which owners could draw from their homes and "save" by living in them is commonly termed "imputed rent". The economic advantage of owner-occupied housing may also be viewed as the return on the capital invested in real estate (see Box 2.2).

The literature generally distinguishes three main methods to compute imputed rent: rental equivalence, user cost, and self-estimation which take different perspectives on the advantages of homeownership. The first method sees the advantage as a rent, which does not have to be paid. The second method, considers the advantage as a return on investment made in real-estate rather than investing in the financial market. The third method is based on personal estimates of the rent people would have to pay for their home.

Under the rental equivalence, or market-value, method, imputed rents are thus rents that would be paid for "similar" dwellings. However, the actual rent for an equivalent

---

Box 2.2. **Remarks on the definition of imputed rents**

More than 45 years ago, the United Nations recommended including the economic advantage gained from owner-occupied housing in national accounts. Quoting the UN definition, Yates (1994) argues:

"The total of owner-occupied dwellings which is to be included in gross output should, in principle, be valued at the rent on the market of the same facilities. It may be necessary to approximate the market rent by an estimate which should cover items such as operating, maintenance and repair outlays, water charges, insurance service charges, taxes, depreciation and mortgage interest in addition to interest on owner's investment in the dwelling and other elements of net return."

Yates' line of thinking suggests that imputed rent – the economic advantage to be gained from owner-occupied housing – coincides with the estimate of gross rents minus maintenance, operating, and insurance costs and taxes. As such, imputed rent is a component of the unearned income of private households and is classified in the same category as income from interest, dividends, and letting or leasing property (United Nations, 1977). The Canberra Group (2001) has also recommended including imputed net rent in calculations of disposable income in international surveys. Including imputed rents in disposable household income is a step towards a fuller and more accurate definition of material well-being (see also OECD, 2013a; and Canberra Group, 2011).

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accommodation cannot always be found on the market because, for example, the rental sector might be very small or the characteristics of other rented properties very different from the one for which rent is imputed. In that event, the value of the actual rent has to be estimated by means of external price statistics or rental prices and other data. The method used in Australia to compute imputed rents belongs to this category.[19] Eurostat also recommends the indirect rental equivalence approach which involves estimating the rents of dwellings similar to those which are either owner-occupied or rented at reduced rates or free of charge, minus all relevant costs.[20]

User-cost methods determine imputed rents by estimating the costs that owners would consider when they set rents. In the capital-market approach, user costs are also the "opportunity costs" of making alternative use of capital on the capital markets – which would produce real income flows in the shape of interests and dividends. This opportunity cost represents the net return on home equity. The American Panel Study of Income Dynamics (PSID) and the British Household Panel Study (BHPS) both use the capital-market approach. In the PSID, the homeowner estimates the value of the owner-occupied dwelling from which he or she deducts the value of outstanding debt (such as mortgages). If the difference is positive, the imputed rent is calculated with an interest rate of 6% (Butrica and Jurkat, 1996). Only four other European countries (Estonia, Iceland, the Slovak Republic, and Sweden) have opted for the capital market approach (Junto and Rejo, 2010; Törmälehto and Sauli, 2013).

With the self-estimate approach, owners are asked directly to estimate the rent that they would have to pay if they lived in their homes as tenants. Such information has been collected, for example, in the German Socio-Economic Panel Household Survey.

Canada has adopted a more pragmatic, nuanced approach that accounts for the potential "housing advantage" which low-income homeowners may have over non-owners by adjusting its Market Basket Measure (MBM) of low income (see Box 2.3).

> Box 2.3. **How Canada includes the mortgage-free Homeowner's Advantage in its low-income measure**
>
> The market basket measure (MBM) is a low-income measure based on the cost of a specific basket of goods and services comprising a modest, but decent, standard of living. It is made up of five components that represent typical living expenses for a reference family of two adults and two children: food, clothing and footwear, shelter, transportation, and other necessary goods and services. The total cost of the basket is calculated for 49 geographical areas in the 10 Canadian provinces. If a family's MBM disposable income is less than the cost of the basket, all members in the family are considered to be in the low-income bracket.
>
> Originally, the shelter component of the MBM basket was based on the median rental shelter costs for two- and three-bedroom units (considered adequate to meet the housing needs of the reference family) in each geographical area of interest.
>
> During the first MBM review process, it was decided that the specific shelter costs of homeowners without a mortgages should also be considered. The decision was prompted by the recognition that, in a given year, mortgage-free homeowners generally have to pay less than what they would for the same type of housing on the rental market.
>
> To reflect the additional resources that mortgage-free homeowners enjoy thanks to their lower mandatory shelter costs, the following adjustment to their disposable income is applied:
>
> ● Calculate the shelter costs for mortgage-free homeowners. As for renters, they are based on the median shelter costs for two- and three-bedroom mortgage-free dwellings in each MBM region.
>
> ● Establish the Homeowners' Advantage by calculating the difference between homeowners' shelter costs and those of tenants.
>
> ● Adjust the disposable income of mortgage-free homeowners by adding the Homeowners' Advantage prevailing in their respective MBM region to their MBM disposable income.
>
> Such an adjustment does not involve mortgage-free homeowners liquidating any assets. Adding the Homeowners' Advantage to mortgage-free homeowners' disposable incomes is an attempt to capture the global additional monetary resources available to them in a given year for purchasing the other goods and services included in the MBM basket.

The sheer diversity of approaches that different countries use makes it difficult to compare imputed rents internationally and should be borne in mind when interpreting results on a cross-country basis. For example, this section uses imputed rents net of owner-specific costs. The treatment of owner specific costs (such as taxes on properties, maintenance costs and interest on mortgages) may differ substantially across countries which may affect estimates of imputed rents. In this respect, Smeeding and Weinberg (2001) note that, "if net imputed rent is included in income, one must be careful that it is measured in a way that leads to greater international standardisation instead of nation-specific measures of its value".

The effect of including imputed rents in income is shaped by several factors:

● Tenure status.

● The level and distribution of mortgage indebtedness.

● Types of housing support and fiscal incentives for home buyers and rent-payers.[21]

● The size and structure of the rental market.

● The methodology and approach used to compute imputed rents.

The Australian example illustrates the impact of outstanding mortgage payments: the value of the net (of owner-specific costs) imputed rent estimated for outright owners in 2009-10 was AUD 251, compared to only AUD 31 for owners with mortgages (ABS, 2012, Table 19).

Factoring imputed rents into income generally increases the disposable income of householders who own the dwelling they live in or rent at less than the going market rate. Among the 22 OECD countries with relatively comparable data collected by EU-SILC (Törmälehto and Sauli, 2013), the incomes of the over-65s rise by 18% on average when net imputed rent is added (Figure 2.15). The effects on incomes are substantial – between 20% and 29% – in Greece, Hungary, Iceland, Italy, Norway, Poland, Slovenia, the Slovak Republic, Spain, and the United Kingdom. The weakest effects, at around 5%, are observed in the Czech Republic, the Netherlands, and Portugal, while imputed rents account for some 10% to 15% of household equivalised disposable incomes in Austria, Estonia, France, and Germany. However, it is in Spain, which measures imputed rents with the rental equivalence method, that the resulting rise in disposable income is greatest.

Figure 2.15. **Net imputed rents as percentages of disposable income of the over-65s**
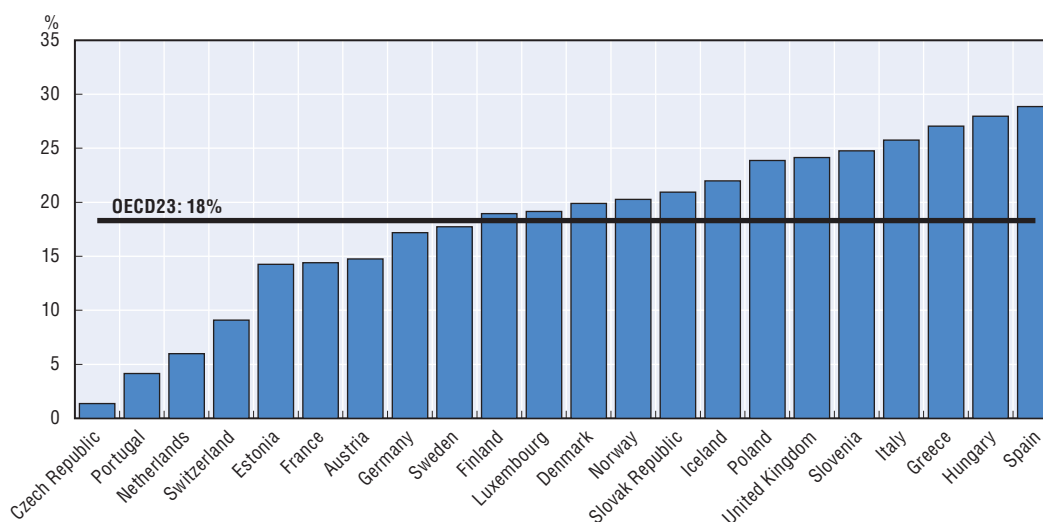
Note: Disposable income is defined as the equivalised (with the square root equivalence scale) income derived from the sum for all household members of gross personal income components from employment, self-employment, old-age pensions, survivor's benefit, disability benefit, sickness benefit, and education-related allowances. Incomes obtained from rented properties are also included. Similarly, allowances related to the family and children, housing allowances, regular inter-household cash transfers received, interests, dividends, profit from capital investments in unincorporated business, and income received by people aged under 16 – all are incorporated into income. The income is net of interest paid on mortgage, regular taxes on wealth owned, regular inter-household cash transfers paid, and tax on income and social insurance contributions. Income includes imputed rents.
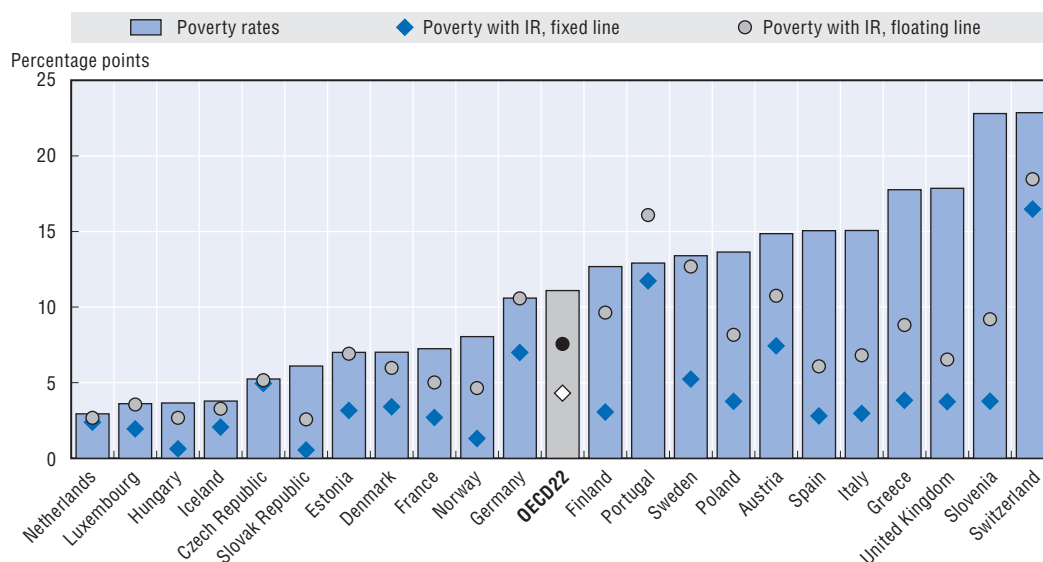*Source:* Authors' calculations based on data from EU-SILC Revision 1 of March 2013.

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Recent studies also suggest that the impact on incomes is greatest among older homeowners who have paid off their mortgages, in particular if they are women living alone. As correctly noted in Eurostat (2013), "imputed rental equivalences can be over-estimated because the rental prices are abnormally high or under-estimated because the absence of rental price data leads to crude approximations from geographically large and

heterogeneous rental markets".[22] The imputation approach used in countries with very small private rental markets may also yield biased estimates of rents, thereby affecting the estimates of imputed rents.

Figure 2.16 shows poverty rates with fixed and floating poverty lines in selected European OECD countries before and after incorporating imputed rents. When the line is fixed, poverty is computed by comparing the incomes, augmented by net imputed rents, with the original poverty threshold calculated without imputed rent. With a floating line, poverty is computed with reference to a new income threshold that also includes the (net) imputed rent.

Figure 2.16. **Poverty rates among the over-65s before and after the inclusion of imputed rents (IR) in household income**

Source: Authors' calculations based on data from EU-SILC Revision 1 of March 2013.

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In nearly all countries shown, poverty rates decline once imputed rents have been included. The reductions amount to around 7 percentage points when the poverty line is fixed and 3.5 when it is floating. On both metrics, the largest poverty reductions, above 60%, are observed in Slovenia and Spain. By contrast, imputed rents have almost no effect on reducing exposure to poverty in the Czech Republic, Estonia, Germany, or Luxembourg. Portugal's adoption of a floating poverty line actually leads to a greater risk of relative poverty among the elderly.

Decisive determinants of poverty reduction (linked to the consideration of imputed rents) among the elderly are their tenure status and levels of mortgage indebtedness. For Spain, Calvo and Sanchez (2010) show that the inclusion of imputed rents in household income does not substantially change the number of people considered poor and non-poor on the basis of where they live. The main changes in the composition of the poor population that result from including imputed rents in income are the type of households, the age of household members, and tenure status. The authors suggest that the inclusion of imputed rents reduces by more than half the poverty rates of the over-65s who live alone. In particular, the poverty rate affecting women aged over 65 falls by 10 percentage points.

The inclusion of imputed rents changes countries' old-age poverty-rate rankings. While the Netherlands, Luxembourg, Hungary and Iceland remain at the bottom of the poverty scale and Switzerland at the top both before and after imputed rents, all other countries experience significant shifts. Greece, Italy, Norway, Spain, and the United Kingdom, for example, all rank much better. Including imputed rent in incomes worsens the rankings of Finland, Germany, Portugal and Sweden because the reductions of poverty are smaller than those observed in other countries (D'Addio, 2013). Where housing equity is held mainly by households at the top of the income distribution, income from owner-occupied housing may deepen inequality among the elderly and explain why imputed rents may exert almost no effect on reducing poverty in some countries, like Luxembourg and the Netherlands.

Impact also varies according to the size of the imputed rents themselves, which in turn is closely linked to housing equity values. The low level of imputed rents may, for example, explain why they have little or no effect in the Czech Republic.[23]

While the data suggest that the inclusion of imputed rents reduces poverty among the elderly in most countries, there remain a number of unresolved issues. They are linked to the different approaches used to compute imputed rents, to the lack of comparable data and to the quality of those available.

Releasing home equity

There are different ways in which homeowners may cash out their housing wealth (Davey, 1995). They may transfer home equity by inheritance or sell it to secure some specific financing needs. Older people generally prefer to stay in their home as long as possible. In that event, as Figure 2.17 shows, they may cash in on all or part of their home equity by means of equity release schemes (ERS).

Figure 2.17. **Equity release schemes**
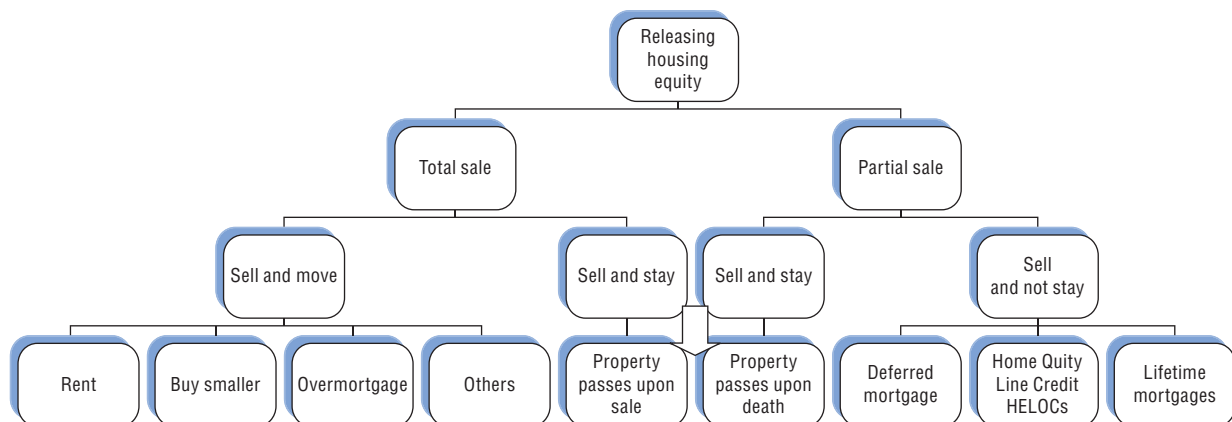
Source: Adapted from Ong, R., M. Haffner, G. Wood, T. Jefferson and S. Austen (2013), "Assets, Debt and the Drawdown of Housing Equity by an Ageing Population", *Positioning Overmortgage Paper*, No. 153, Australian Housing and Urban Research Institute, Melbourne.

ERSs allow homeowners to extract income from their housing wealth in order to support financing needs at different times of life. Schemes generally fit into two main categories: lifetime mortgage arrangements and home reversion plans in which all or part of the property is sold.

With a lifetime mortgage, homeowners take out loans on their property which do not need to be repaid until they eventually leave their home. Lifetime mortgages (also called annuity reverse mortgages or home income plans) may come as roll-up, fixed-repayment lifetime, or interest-paying mortgages. They differ both in the way interest payments are made and when they are paid.

The other main ERS is home reversion in which owners sell all or part of their home while continuing to live there. The price at which the owner sells his or her property is lower than the actual market value and takes into account the discount rate and homeowner's life expectancy. The seller may receive an annuity, a lump-sum, or a mix of the two.

The amount of housing wealth that may be released varies across schemes, as do the costs and risks of the schemes themselves (Ong et al., 2013a and 2013). An outright home sale releases up to 100% of equity. In home reversion, that amount generally depends on the age of the borrower as well as on the value of the house. However, very few comparative studies exist on the state of the ERS market, which makes it difficult to assess its potential impact on retirement-income adequacy.[24] Nevertheless, the use of ERSs has spread steadily in Europe, North America, Australia, and New Zealand (Springer, 1985; Leather, 1990; Jacobs, 1985; Wilson, 1988; Carter, 1985),[25] fuelled by the development of housing and by deregulation and innovation in financial markets. Several recent studies find that younger cohorts, in particular, are increasingly willing to use equity release schemes in, for example, the United Kingdom (Smith, 2004), Australia (Ong et al., 2013a, 2013b), and New Zealand (Davey, 2007).

The available evidence suggests that the use and number of schemes vary widely across countries. Reifner et al. (2009a and 2009b) find that in Europe the total worth of equity release mortgages was about EUR 3.31 billion with an estimated 45 238 contracts in 2007.[26] Yet they still accounted for only around 0.1% of Europe's overall mortgage market. In Australia, the number of loans under equity release schemes more than doubled between 2005 and 2011, while substantial growth was also recorded in the United Kingdom between 1992 and 2011, both in value and number. New Zealand saw more than 4 500 ERS-related loans issued in 2006 for an overall value of NZD 227 million, twice as high as in the previous year. In the United States the number of loans issued under the Home Equity Conversion Mortgage (HECM) programme for people aged 62 and over peaked in (fiscal year) 2009 at 115 000 and fell to about 72 000 loans by 2011.In total, 740 000 loans were initiated under the HECM programme; about 582 000 are still outstanding. The size of the market is, however, relatively small. For example in 2010, when 24 million households headed by someone age 62 and older were homeowners only about 2 to 3% actually had a reverse mortgage (Bowen Bishop and Shan, 2008; see also CFPB, 2012).

Coda Moscarola et al. (2012) examined the worth of a reverse mortgage scheme for an average sample household in Italy and found that such plans could contribute sizably to retirement incomes. For low-income households with housing equity in the bottom 20% of the distribution, the annuity from a reverse mortgage would represent 11% of their income, while for those in the top 20% it would be 35%. Low-income households with average housing equity of around EUR 300 000 could draw an annuity from a reverse mortgage that would account for 24% of disposable income. Equity with the same average value would yield a 16% addition to middle-income households and 10% to low-income ones. Like Ong (2008), Coda Moscarola et al. (2012) suggest that among households with low incomes but above-average housing equity, ERSs benefit the over-80s and single females most.[27]

In a second study, Coda Moscarola et al. (2013) simulated the lump sum which could be extracted from a reverse mortgage in a number of selected European countries assuming interest rates of 6%, 7%, and 8% and a remaining life expectancy of 18.8 years.[28] The left-hand panel in Figure 2.18 shows the value in euros of the average home as supplied by the Survey of Health, Ageing and Retirement in Europe (SHARE) dataset for the countries under scrutiny. In the right-hand panel is the average annuity which the over-65s would receive if they converted 100% of their housing equity at the alternative interest rates of 6%, 7%, and 8%.[29]

Figure 2.18. **Reverse mortgage against 100% of housing equity taken out as an annuity**
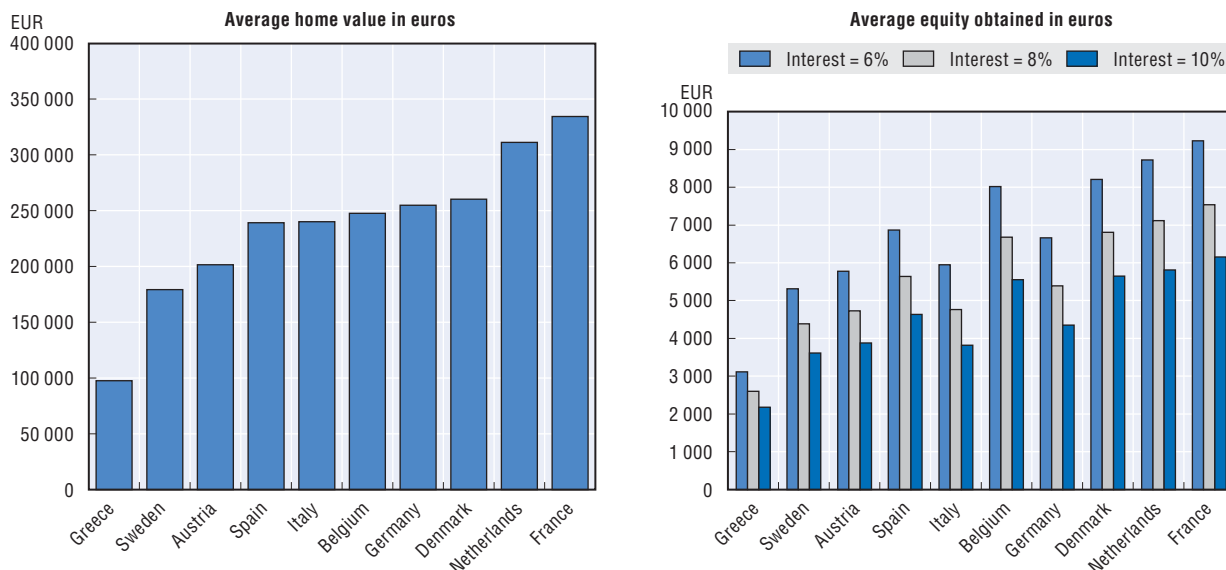
Note: The value of a home is derived from answers to the question asked in the SHARE questionnaire: "In your opinion, how much would you receive if you sold your property today?" For the computation of average equity, the authors assumed that all over-65s decide to convert their housing equity fully into an annuity at interest rates of 6%, 8%, or 10%.
Source: Coda Moscarola, F., A.C. D'Addio, M.C. Rossi and D. Sansone (2013), "Making Assets a Tool Against Poverty?", SHARE conference, November, forthcoming.

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Obviously, differences in the value of housing equity reported in the survey are not strictly comparable and likely to depend on individual preferences and tastes and country-specific circumstances. Bearing that caveat in mind, Coda Moscarola et al. (2013) examine the impact of annuities from reverse mortgages on poverty against a poverty line that is set at 60% of equivalised income, unlike the OECD which uses a 50% threshold and three alternative interest rates.[30]

Using real data on homeownership Coda Moscarola et al. (2013) find that reverse mortgage annuities obtained releasing 100% of housing equity bring about very large reductions in poverty in Belgium and Spain cutting it by more than half. Even in Austria, France, Greece and Italy they have a substantial impact. One reason might be that, as poor people are very close to the poverty threshold, annuities from reverse mortgages could just lift them out of poverty.

In reality, the elderly are highly unlikely to convert all their housing equity into cash income – either because they may wish to bequeath their estate or out of sheer precaution. If they were to release their housing wealth fully, they might also run the risk of squandering their savings and, with life expectancy being uncertain, find themselves with

very inadequate resources. However, Coda Moscarola et al. (2013) show that if they released only 50% of their housing equity, they would substantially enhance their incomes. In Belgium, Denmark, Spain, and Switzerland, poverty would fall by one-third or more, though not by as much in Germany and Sweden.

Finally, the gains from reverse mortgages can be realised only if homeowners are well informed about their options for releasing home equity. In the first place, they need to actually know that financial institutions offer such policies at reasonable rates, particularly for low-income clients, since the annuity value declines as the interest rates increases and rises with declining life expectancy.[31] Homeowners should also feel able to deal with the red tape that converting their home equity would pose.

Figure 2.19. **Poverty reduction as a result of including home-equity annuities in income**
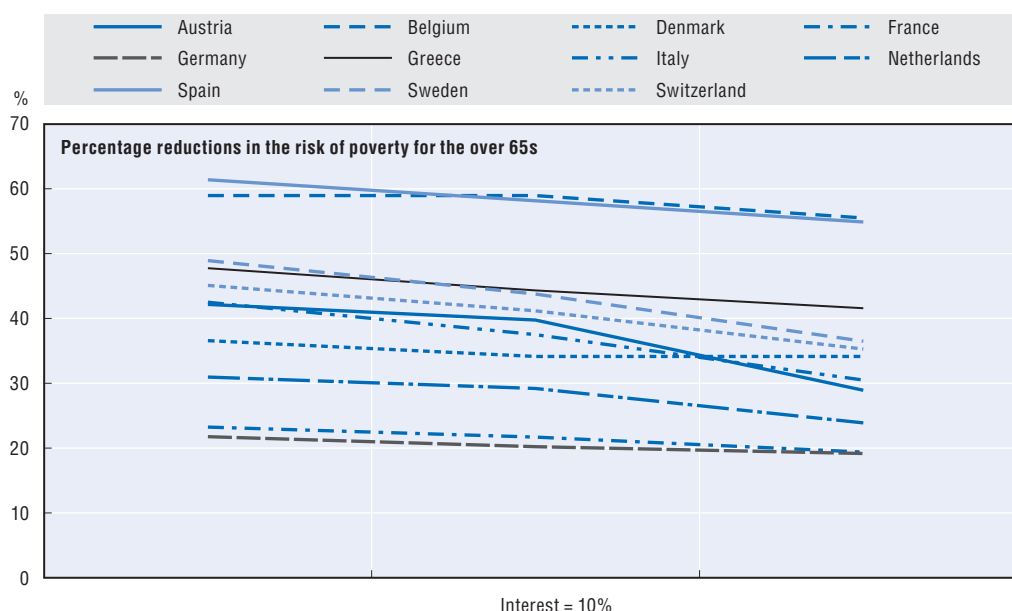
Note: The x-axis shows the alternative interest rates used to compute the annuity. The y-axis shows percentage reductions in the risk of poverty for the over-65s and measured with reference to the 60% of the household equivalised income drawn from the SHARE survey.
Source: Authors' calculations based on data in Coda Moscarola, F., A.C. D'Addio, M.C. Rossi and D. Sansone (2013), "Making Assets a Tool Against Poverty?", SHARE conference, November, forthcoming, and using the 1st and 2nd waves of the SHARE survey.

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Financial wealth

Households save for retirement and other purposes. Financial assets encompass deposit accounts, bonds, stocks, mutual investment funds, life insurance, and investment and financial assets that include pensions.[32] Drawing on two main sources, this section analyses such financial wealth and the part it plays in adequate retirement incomes.

The first source is the Luxembourg Wealth Study (LWS) which examines financial and non-financial assets and liabilities in 11 OECD countries, albeit with a lengthy time lag.[33] The variable drawn from the LWS defines financial wealth as the sum of the value of deposit accounts, stocks, bonds and other mutual funds, but not pensions, whether mandatory or voluntary.

The second source is the 1st wave of the Eurosystem Household Finance and Consumption Survey (HCFS). It was publicly released in May 2013 and supplies comparable data on assets in euro area countries (Eurosystem Household Finance and Consumption Network, 2013a and 2013b).[34] The variable drawn from the Eurosystem HFCS defines financial assets as the sum of the values of investments in private businesses (but not the self-employed), sight accounts, saving accounts, mutual funds, bonds, shares, managed accounts, "other" assets, private loans, voluntary pension plans, and whole life insurance schemes. However, it excludes public and occupational pension plans (see Box 2.4 on funded private pensions).

The main obstacle to analysing the distribution of financial wealth in OECD countries is that comparable data are still scarce. While the reader should bear this limitation in mind, examining the data that *are* available can inform the debate on the adequacy of retirement incomes.
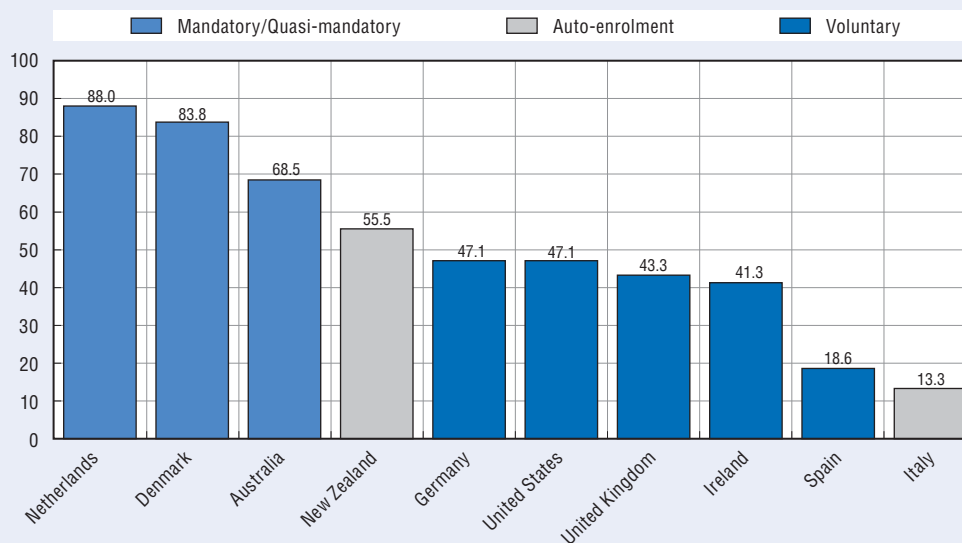

Box 2.4. **Coverage of funded private pensions**

Private pensions are expected to play an increasingly important role in the income of future retirees. They are mandatory or quasi-mandatory in 13 OECD countries. In most of them, payments are paid as monthly benefits which are captured by income measures.

For voluntary pensions, lump-sum withdrawals are more common. In 20 OECD countries, funded pension systems are voluntary – employers decide on a voluntary basis whether to draw up pension plans for their employees. Among such countries, New Zealand has experienced a substantial increase in coverage thanks to the introduction of automatic enrolment and government subsidies. Until the introduction of the "KiwiSaver" scheme in 2007, coverage had declined to less than 10% of the working-age population. By 2010, "KiwiSaver" had built up coverage to 55%.

Coverage of private pension plans in selected OECD countries, 2009-10
As a percentage of the working-age population

Source: OECD (2012), *OECD Pensions Outlook 2012*, Chapter 4, OECD Publishing, *http://dx.doi.org/10.1787/9789264169401-en.*

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Box 2.4. **Coverage of funded private pensions** (cont.)

Italy, however, has been less successful in widening coverage following the introduction of automatic enrolment in 2007, with private pension plans covering only 13.3% of the working-age population by the end of 2010. The United Kingdom introduced an automatic enrolment scheme in October 2012, so it is still too early to evaluate coverage.

In order to understand coverage gaps and their implications for retirement-income adequacy – especially in countries where private pensions are voluntary – coverage needs to be broken down into its different socio-economic facets. OECD (2012a) contains household data indicators on coverage from private pensions in eight OECD countries (Australia, Germany, Ireland, Italy, the Netherlands, Spain, the United Kingdom, and the United States). They apply to age, income, gender, type of employment (full-time or part-time), and type of contract (permanent or temporary). The OECD analysis shows that coverage is uneven, particularly in voluntary private pension systems, and some population groups have very low enrolment rates in private pension plans.

Younger people tend to be less often enrolled in privately managed funded pensions, especially in voluntary ones. However, their coverage increases with age. In contrast, coverage is relatively constant across age groups in mandatory or quasi-mandatory private pension plans, as Australia and the Netherlands illustrate.

Coverage, particularly of voluntary plans, also increases with income before generally reaching a plateau after the 7th or 8th income deciles. Among the poorest income groups, however, voluntary scheme coverage is quite low – around 15% – except in the United States where it reaches 29%. By contrast, the mandatory/quasi-mandatory systems of Australia and the Netherlands plateau out much earlier – after the 2nd or 3rd deciles – and coverage of the poorest income groups exceeds 65%.

There is also a gap in coverage by gender. The wide gap is observed in the Netherlands, where voluntary personal pension plan coverage of men exceeds that of women by 16.4 percentage points. Next comes Ireland (10.3 percentage points), Italy (5.4), and Spain (3.0). In Germany, the United Kingdom, and the United States, the coverage gender gap is negligible.

Source: OECD (2014), *OECD Reviews of Pension Systems: Ireland*, forthcoming; OECD (2012), *OECD Pensions Outlook 2012*, Chapter 4, OECD Publishing, *http://dx.doi.org/10.1787/9789264169401-en*; Antolin, P., S. Payet and J. Yermo (2012), "Coverage of Private Pension Systems: Evidence and Policy Options", *OECD Working Paper on Finance, Insurance and Private Pensions*, No. 20, OECD Publishing, *http://dx.doi.org/10.1787/5k94d6gh2w6c-en*.

Mean and median financial wealth reveals wide disparities

Figure 2.20 illustrates households' mean and median financial wealth expressed in 2011 USD purchasing power parity (PPP) in countries studied in the LWS. While the mean reflects the simple average, the median shows the value which divides the population into two equal parts: one-half below the median line, the other half above. When the distribution is very unequal, as it is with financial wealth, the median is much lower than the mean.

Using comparable data from the LWS, average median wealth across the whole population is about USD 8 200. It ranges from USD 2 600 (at 2011 PPP rates) in Germany to almost USD 22 000 in Austria. Average mean wealth is much higher – at about USD 43 100 – ranging from about USD 16 300 in Finland to USD 124 000 in the United States.

Examination of older age groups shows that median financial wealth in the over-50s age group is USD 14 300, while mean wealth amounts to about USD 63 000. Differences across countries are again very wide, with median wealth ranging from USD 5 600 in Finland to almost USD 39 000 in Japan and mean wealth from USD 22 000 in Finland to USD 219 000 in the United States.

Figure 2.20. **Median and mean financial wealth, 2011**

2011 USD, in purchasing power parities
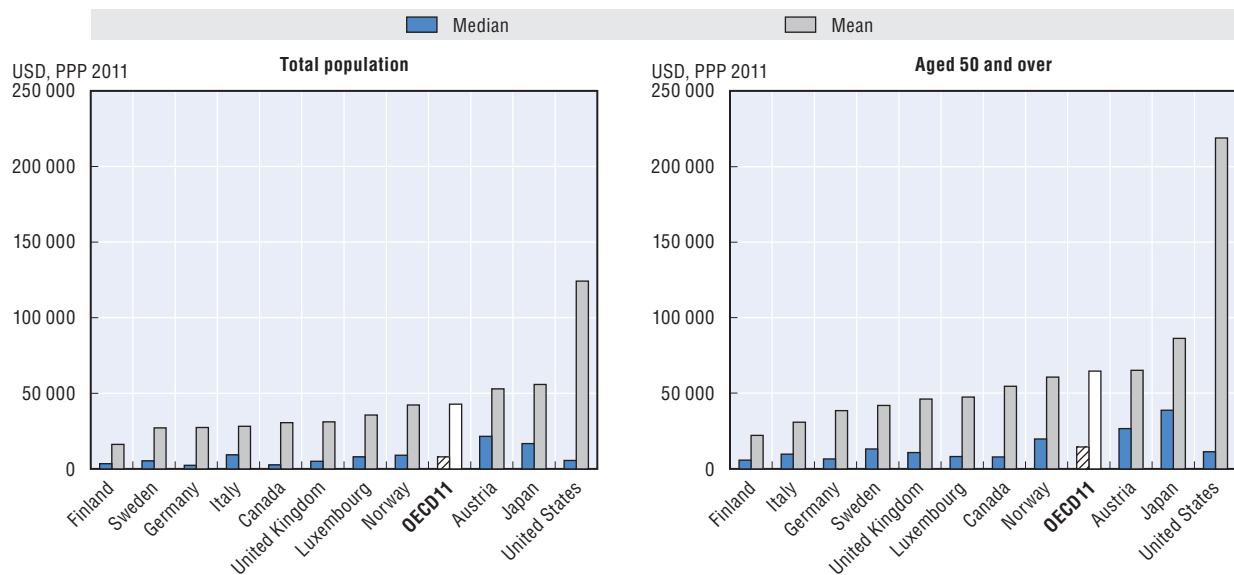
Data from the Eurosystem HFCS paints a very similar picture for euro area countries,[35] where 94% of the elderly held some form of financial wealth in 2010-11. The highest shares of older people without wealth are found in Slovenia and Greece (around 25%), while in Finland and Luxembourg close to 100% of the elderly had some form of financial wealth. Mean financial wealth was about EUR 120 000 in the euro area's total population in 2010, ranging from EUR 7 700 in the Slovak Republic to more than EUR 260 000 in Spain. Median wealth, however, was much lower at EUR 20 000 on average, with EUR 3 000 in the Slovak Republic at one end of the spectrum and EUR 69 000 in the Netherlands at the other.

There is a large gender gap in wealth holdings: women possess much less. Among the countries depicted in Figure 2.21, the gender wealth gap in old age is about 46% on average.[36] Countries where the gap is widest are Belgium, France, Germany, Greece and Spain (see also D'Addio et al., 2013).

The uneven distribution of financial wealth is also clearly visible in Figure 2.22, which shows the approximation of the Lorenz Curve based on ECB data. The x-axis sorts households by wealth deciles, while the cumulative proportion of financial wealth held by households lies along the y-axis. A perfectly equal distribution would describe a straight 45-degree line showing that each 10% of population held exactly 10% of the overall wealth. The larger the distance of the actual curve from the 45-degree line, the higher the inequality in the distribution of financial wealth. LWS data yield the same result. In the 13 OECD countries in Figure 2.22, the top 30% of the wealth distribution hold more than two-thirds of the financial wealth.

Wolff (2012) points out that in 2010 the richest 1% of the United States' population owned 42.1% of private held financial wealth, the next 19% owned 53.5%%, and the bottom 80% only 4.7%. While the top 1%'s share of total wealth remained broadly stable
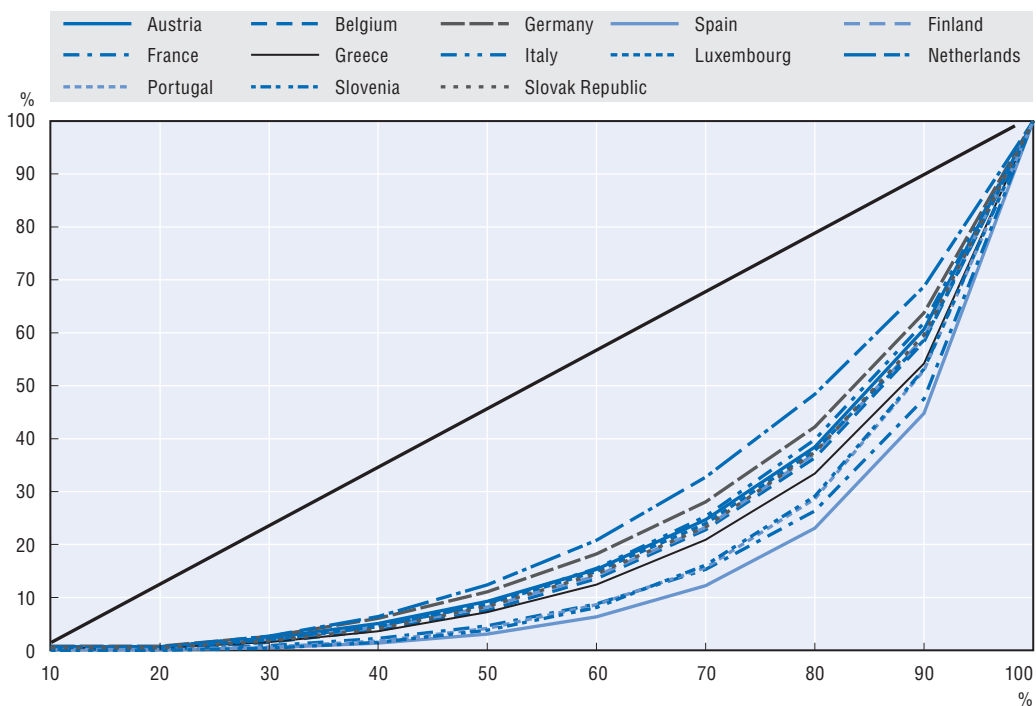
Figure 2.21. **(Mean) gender wealth gap among the over-65s**
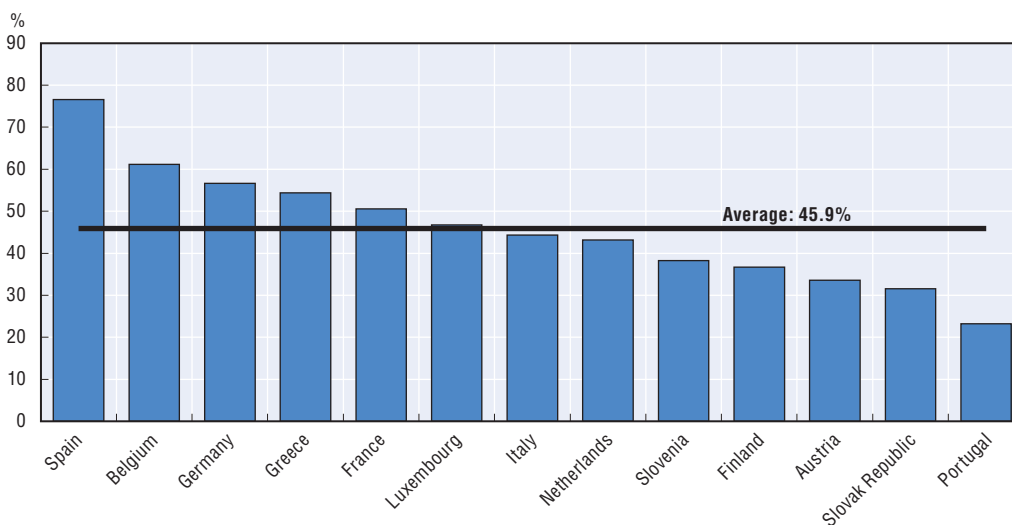
Source: Authors' calculations based on data from the first wave of the Eurosystem Household Finance and Consumption Survey (HCFs).

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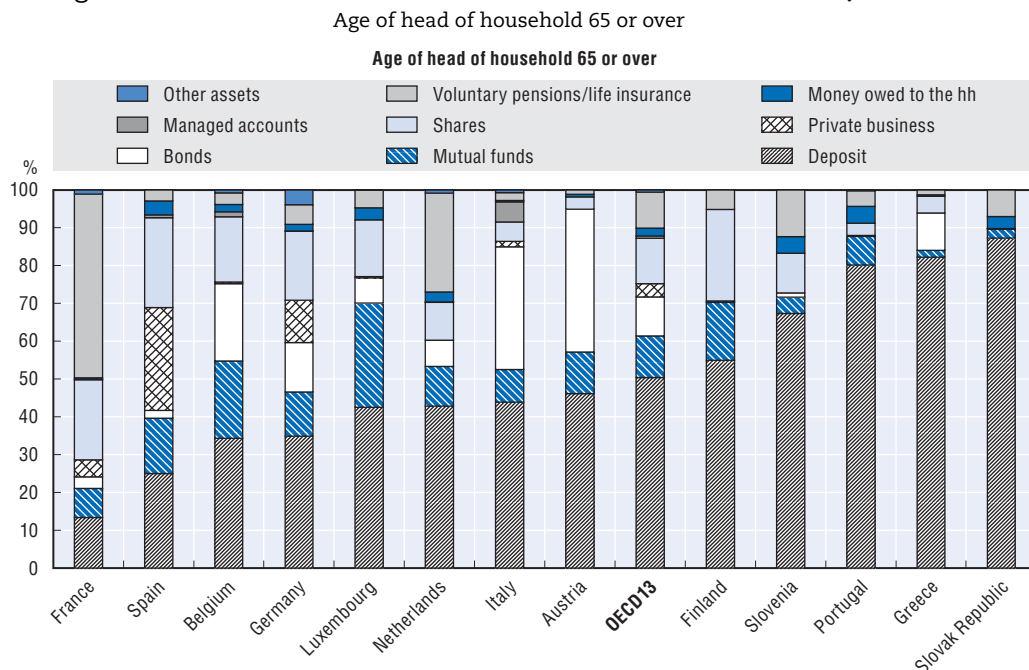Figure 2.22. **Distribution of financial wealth**

Source: Authors' calculations based on data from the first wave of the Eurosystem Household Finance and Consumption Survey (HCFs) in 2013.

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between 2007 and 2010, the wealth of the bottom 80% declined by 2.3 percentage points. During the same period, those in the top 19% saw their wealth increase by more than 3 percentage points (ibid., Domhoff, 2013).

Figure 2.23 shows an average "wealth portfolio" held by the over 65s in the thirteen OECD countries covered by the HCFS. The portfolio is 50% deposit accounts, 12% equities, 11% mutual funds, 10% bonds, 9% voluntary pensions or life insurance, 3.5% private business (not the self-employed), and the remaining 3% residual categories of assets like managed accounts and money owed to the household. Only Belgium, France, Germany and Spain have wealth holdings in cash deposits of less than 40% of total financial assets, which suggest that in most countries in Figure 2.23 the elderly's wealth holdings are mainly liquid. Savings in the form of shares, mutual funds, and investments in private businesses account for more than 40% of the total wealth portfolios of the elderly in Germany, Luxembourg and Spain.

Figure 2.23. **Breakdown of wealth in selected OECD countries, 2010-11**

Age of head of household 65 or over

Source: Authors' calculations based on data from the first wave of the Eurosystem Household Finance and Consumption Survey (HCFs) in 2013.

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Beyond individual tastes, the propensity to invest in specific forms of wealth holdings is also shaped by institutional factors, such as the structure of the pension system, the financial products available, and the tax treatment of different investments. For example, the voluntary pensions/life insurance component in the wealth holdings of the elderly is very large in France, where it represents 48% of their assets – due to specific tax breaks for putting savings in life insurance products.

Dissaving and income streams

The HCFS data also show that average gross wealth generally increases between the ages of 25 and 64 years old. It declines thereafter, when people generally start to dissave (Figure 2.24). Average median gross wealth peaks between 55 and 64 years old at around EUR 53 000. But that average figure masks wide differences across countries. In Finland, for example, the median wealth of people aged between 55 and 64 is above EUR 107 000, while in the Slovak Republic it is only about EUR 4 400. It is interesting to note that in the Netherlands and France wealth increases in an almost linear manner with age.

Figure 2.24. **Median financial wealth by age group**
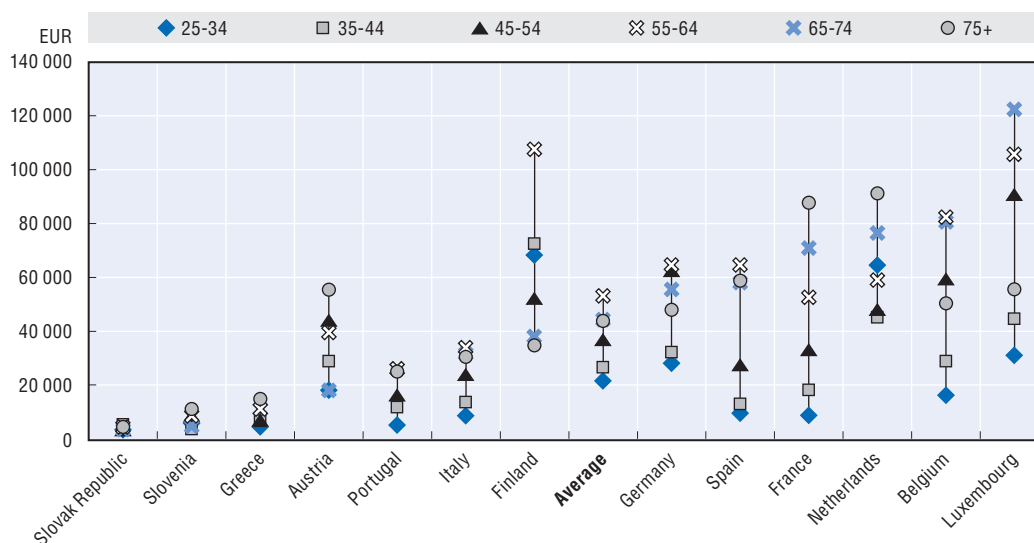
Source: Authors' calculations based on data from the first wave of the Eurosystem Household Finance and Consumption Survey (HCFs) released in 2013.

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Income from financial wealth comes in the form of interest payments, dividends, and capital gains. Converting financial wealth can generate an income stream that supplements other sources of retirement income, since people gradually draw down their savings as they advance into old age. They follow very different patterns when they do so, however.

Bloom et al. (2006) report that, in the United States, people's savings increase from their early 30s up to retirement and decline thereafter. However, the authors do not find any clear dissaving trend between the ages of 65 and 75 (see also Bloom and Canning, 2006). Börsch Supan et al. (2003) describe similar patterns for Germany and find Germans actually never stop saving. Hayashi et al. (1988) show that in the United States retirees dissave on average about one-third of their peak wealth over retirement. The remainder, which consists mostly of housing wealth, is left as bequests. They compare American practices with patterns observed among the elderly in Japan and report big differences between couple-households (living with or without children) and single households – while the former keep on saving, the latter dissave (see also Hayashi, 1989). Studies based on the SHARE dataset for European countries show that savings and dissavings rates hinge on socio-economic factors. Health, income and the distribution of wealth also affect dissaving in old age, as does the availability of and access to financial products, such as annuities, which can help retirees secure a regular income until the ends of their lives (see e.g. Romiti and Rossi, 2012).

Drawing on data from the LWS, Annex 2.A1 shows an example of how annuities are calculated through a combination of standard techniques from actuarial and income-distribution analysis that transforms stocks of wealth into a lifelong stream of income. The results of the analysis suggest that the income streams obtained from the conversion of financial wealth tend to be smaller than those from housing wealth. In the 11 OECD countries considered by the LWS, converting financial wealth can produce incomes that range from USD 68 in Finland to USD 453 in the United States. But these national average figures do not yield any very informative conclusions, given the highly unequal distribution of financial wealth in most countries.

Median values tell a different story, however. In all the countries analysed, with the exception of Austria and Japan, one-half of the population could convert their stock of financial wealth into annuities of less than USD 30. The distribution of annuities is very close to that of stocks of wealth: they increase at higher quintiles.

Coda Moscarola et al. (2012) adopt a similar procedure for calculating annuities. Taking an interest rate of 2.5%, they report annuities varying from EUR 415 in Greece to around EUR 4 955 in Switzerland for those over-65s who decide to convert 70% of their financial wealth. Lower annuities are obviously obtained by releasing lower shares of wealth and values are higher if interest rates rise (see Figure 2.25). Unfortunately, consistent estimates of the extent to which annuities contribute to reduce poverty are not available.

Figure 2.25. **Annuities obtained by releasing different percentage of total financial wealth**
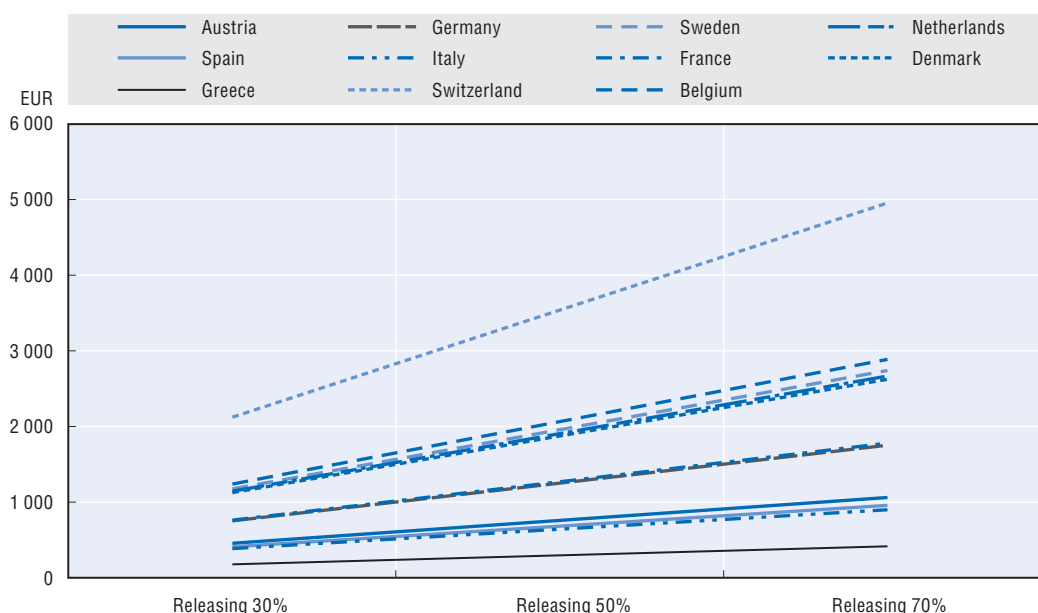
Source: Authors' calculations based on the results provided in Coda Moscarola, F., E. Fornero, A. Romiti, M.C. Rossi and D. Sansone (2012b), "Is Housing an Impediment to Consumption Smoothing?", CERP, Italy on the second wave of the SHARE data.

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Because of the very unequal distribution of financial wealth, the scale of poverty reduction is likely to be related to the characteristics of the households who hold such wealth and to the properties of pension systems (in other words, whether the private component is voluntary or mandatory). Moreover, where financial wealth is concentrated primarily at the top of the income distribution, the income that it yields has only a limited effect on reducing poverty.

Finally, the cost of annuities is an important factor in individual decisions to convert financial wealth. For example, the duration over which payment is made significantly affects its cost. With a term annuity there is a defined period over which payments are made to the retiree. By contrast, with a life annuity the socio-economic position of the insured person (gender, marital status, health, etc.) needs to be taken into account. Life annuities are typically illiquid and inflexible, and nor do they allow for bequests. They are

also expensive, given that only individuals who expect to live a long retirement will be interested in purchasing them. Moreover, sales commissions and the paperwork costs of annuities are often considerable, which makes them unattractive and even unaffordable for lower income groups.

Publicly provided services

OECD governments provide a wide range of social services, from healthcare and education to social housing (see Verbist et al., 2012; Verbist and Matsaganis, 2012; D'Addio and Cavalleri, 2013). Some services – such as homecare, institutional care, and recreational and rehabilitation support – are of particular importance to the elderly and can represent a substantial cost for elderly households if they are purchased privately.

In-kind public eldercare growing but still limited

Some countries also offer other services to the elderly, such as free public transport, television and radio licences, or electricity and gas allowances. Ireland, for example, has a scheme, the Household Benefits Package, which is means-tested for people aged 65 to 69 and available to all from the age of 70. In Australia, services for the elderly are provided through a large number of government programmes at federal, state and territory, and local levels. There is a particularly strong provision for the oldest-old – people aged between 75 and 80 years.

In the OECD area, expenditure on publicly provided services for the whole population averaged 14.6% of GDP in 2009, slightly above the value of corresponding cash transfers (12.6%). Mexico, Chile, Korea, Iceland, and Australia spend much more on services than on cash transfers. By contrast, many EU countries – particularly Austria, Italy, Poland, and Greece – focus far more heavily on cash transfers (Figure 2.26).

In-kind benefits have grown faster than cash transfers in recent years. Between 2000 and 2009, spending on in-kind benefits[37] in the OECD rose by 2.5 percentage points of GDP, while cash transfers[38] grew by 1.5. The same patterns are not observed from country to country, however. For example, the relative share of public services grew significantly in Chile, Australia, Slovenia, New Zealand, and the Netherlands, whereas cash benefits rose more steeply in Mexico, Iceland, Ireland, and Portugal.

The largest component of public expenditure on in-kind social benefits are education and healthcare services, with education accounting for 5.8% of GDP and healthcare 6.6% in 2009. Care services for the elderly are still a minor component, accounting for an average of 0.6% of GDP, although they have developed more widely in Japan, Australia, the Nordic countries, and the Netherlands. Recent projections from the European Commission (2012), however, point to eldercare costs doubling – and possibly tripling – by 2060 in the EU area as populations age. The increase will exceed 3 percentage points of GDP in Denmark, Norway, and the Netherlands.

The costs of care and caring

Paying for long-term care can have dramatic consequences for the adequacy of retirement incomes (OECD, 2011; OECD, 2014b). The OECD 2011 report *Help Wanted? Providing and Paying for Long-Term Care* shows that the costs associated with low care needs (i.e. ten hours per week) may rise to very high levels at old ages (65 and over) and account for more than 60% of a senior's available income up to the fourth decile (Figure 2.27). Care

Figure 2.26. **Gross public spending by type of benefit for the total population, cash and in-kind, 2009**

As a percentage of GDP
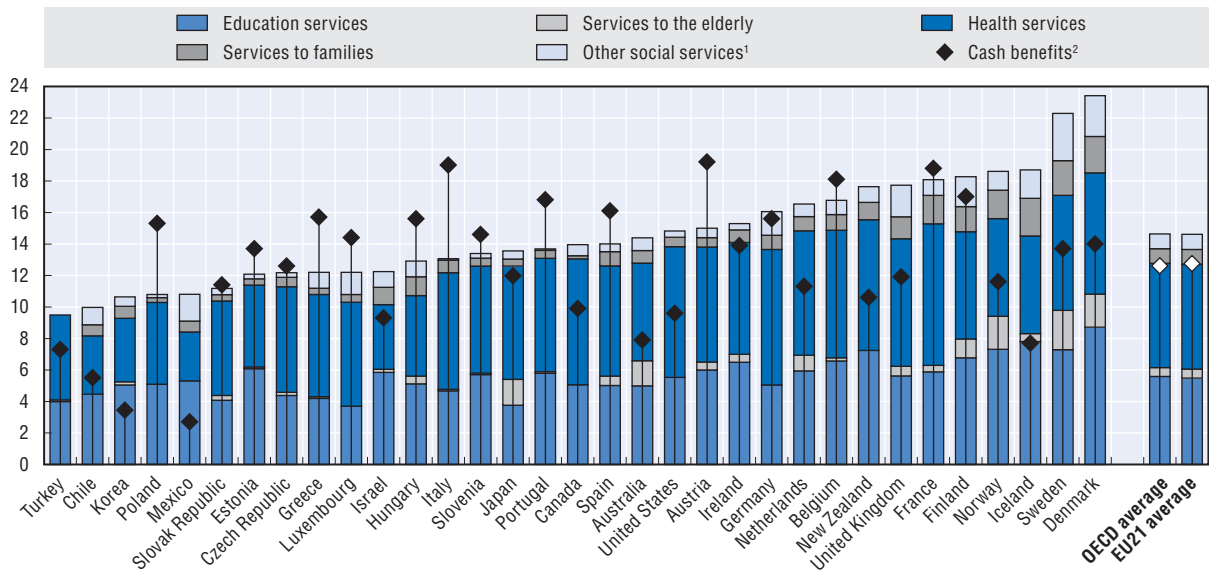
Note: Countries are ranked in ascending order of total expenditure on all social services. Data on education services in Greece, Luxembourg and Turkey refer to 2005.

1. "Other social services" include services to survivors, disabled persons, the unemployed, social assistance and housing services, though estimates of social housing are not included.
2. "Cash benefits" encompass cash transfers to the elderly, survivors, disabled persons, families, the unemployed, as well as transfers for social assistance.

Source: OECD Social Expenditure Database, OECD Education Database.

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Figure 2.27. **Cost associated with (low-) care needs at old age (65 and over)**

Share of adjusted disposable income for individuals 65 years and over in different income deciles, mid-2000s
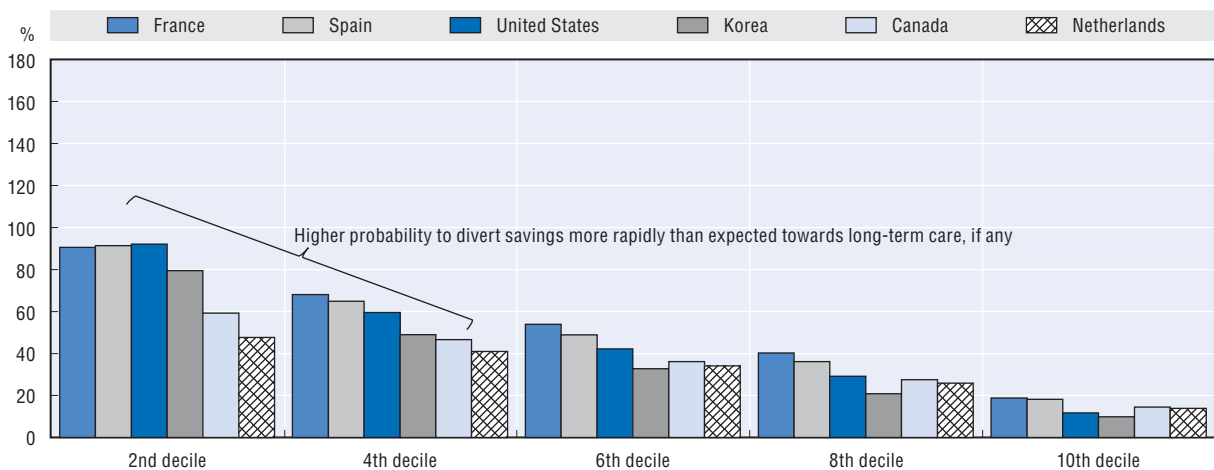
Note: Low-care need is defined as 43.33 hours of care per month, at the prevailing rate per hour, excluding public subsidies, in each respective country.

Source: OECD (2011), *Help Wanted? Providing and Paying for Long-Term Care*, OECD Publishing, *www.oecd.org/health/longtermcare/helpwanted*; OECD (2014), *Women and Pensions*, OECD Publishing, forthcoming.

StatLink ⬛⬛ *http://dx.doi.org/10.1787/888932936294*

costs that meet a wide range of needs (25 hours a week) may exceed 60% of disposable incomes up to the eighth decile (OECD, 2011c). Women, whose life expectancy is longer and who have lower pensions and less wealth are particularly exposed to old-age poverty when they begin to need long-term care (OECD, 2014b).

OECD estimates suggest that the share of full-time equivalent nurses and personal carers – who currently represent between 1% and 2% of the total workforce – could more than double by 2050. Close to two-thirds of family carers are women who forego periods of paid work to look after their near and dear. In some countries, they even carry out much intensive care (more than 20 hours a week). In Southern Europe, the Czech Republic, and Poland, more than 30% of family carers provide intensive care, with the share even higher in Spain (over 50%) and Korea (over 60%). While care can alleviate the poverty risk to which old people are exposed, it jeopardises the adequacy of carers' future retirement entitlements, as the vast majority are not sufficiently covered by pension systems.

Public services boost retirement-income adequacy

Taken together and with respect to the whole population, education, healthcare, childcare, eldercare and social housing services enhance households' incomes by 28.8% on average in 27 OECD countries, with the largest aggregate effects in Sweden (41%) and the lowest in Australia (19%) (Figure 2.28). Healthcare services, in particular, lift incomes by an average of 14%, particularly in France (17.9%) and Sweden (17.2%), but much less in the Netherlands (10.9%). Everywhere eldercare services still account for a small share of public expenditure, however. Accordingly, their average income-enhancing potential remains low at 1.8%, although in Sweden, the Netherlands, and Norway they contribute around 5% to household incomes.

Figure 2.28. **Income-enhancing effect of public services in the total population, 2007**
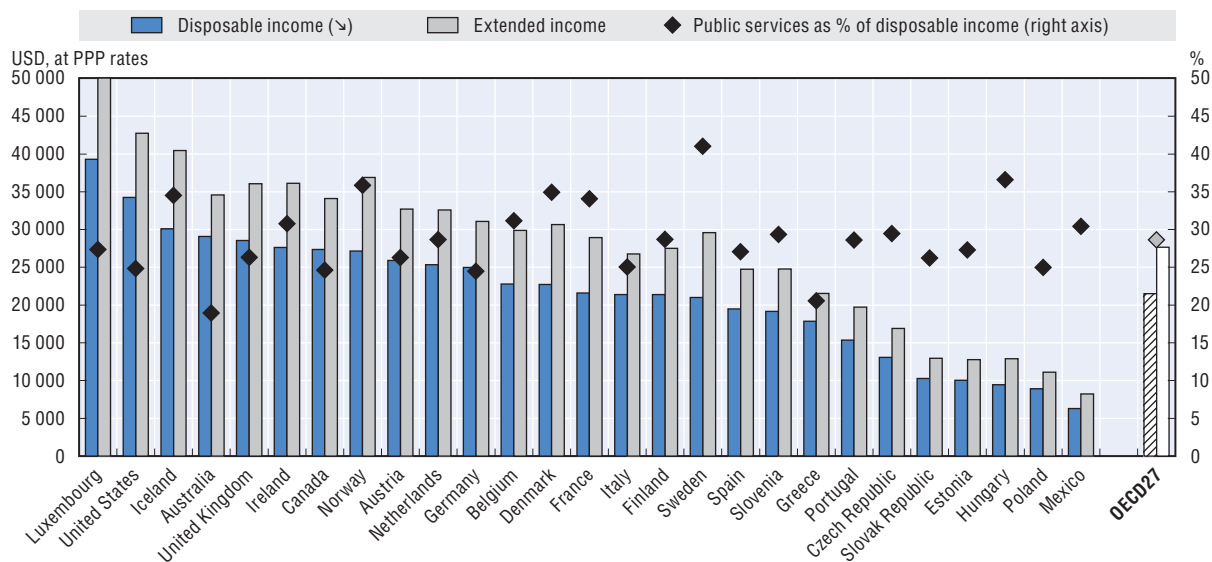
Note: Income data for each country are adjusted for inflation (when they refer to a year different from 2007) before being converted into USD based on PPP rates for actual consumption in 2007. This exchange rate expresses the costs of a standard basket of consumer goods and services purchased on the market (or at subsidised rates) by the public sector in different countries.
Source: Verbist, G., M. Förster and M. Vaalavuo (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 130, OECD Publishing, *http://dx.doi.org/10.1787/5k9h363c5szq-en*.
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Figure 2.29 also suggests also that public services are likely to benefit the elderly more than the working-age population: about 40% of older people's extended income is made up of in-kind public services, compared to 24% for the working-age population at large. However, in some countries the share of public services in the disposable income of the elderly is much larger: it exceeds 70% in Sweden and Norway and 60% in Iceland and Denmark.

Figure 2.29. **Income-enhancing effect of public services by age, 2007**
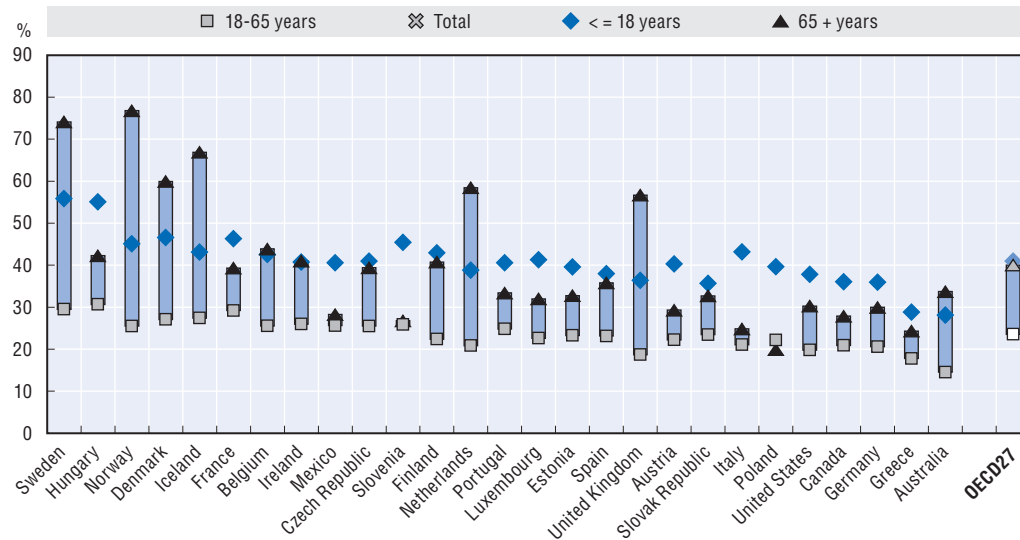
Note: Income data for each country are the per capita net equivalised disposable income of people aged 65 and above. The equivalence scale is the square root of household size. Income data is taken from the *OECD Income Distribution Database* and refers to the mid-2000s. Income is adjusted for inflation and then converted into USD at the relevant PPP rates.

Source: Verbist, G., M. Förster and M. Vaalavuo (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 30, OECD Publishing, *http://dx.doi.org/10.1787/5k9h363c5szq-en*; and *OECD Income Distribution Database*, *www.oecd.org/social/income-distribution-database.htm*.

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Public services, particularly health- and eldercare, play an important part in enhancing household incomes at the bottom of the income distribution. Verbist et al. (2012) find that the aggregate value of services represents an average of 76% of the disposable incomes of the poorest 20%, but only 14% of those of the richest 20% (Figure 2.30).

Looking in particular at long-term care, Verbist et al. (2012) stress their redistributive impact in that people towards the bottom of the income distribution benefit most (Figure 2.31). In Northern European countries for example, the bottom quintile are the recipients of between 40% and 50% of long-term care: on average in the 14 OECD countries in Figure 2.31, long-term in-kind care benefits boost incomes among the bottom quintile by more than one-third and incomes among the top quintile by less than one-fifth (Verbist et al., 2012).

Publicly provided services reduce poverty in the total population by an average of 46% with a floating poverty line. As Figure 2.31 shows, the result is a fall from 10% to 6% in the average poverty rate of the 14 OECD countries under scrutiny. The sharpest reductions are observed in Ireland, Belgium, and the United Kingdom (down by about 60%) and the smallest in Estonia and Sweden (27%). Poverty rates are between 6% and 18% when
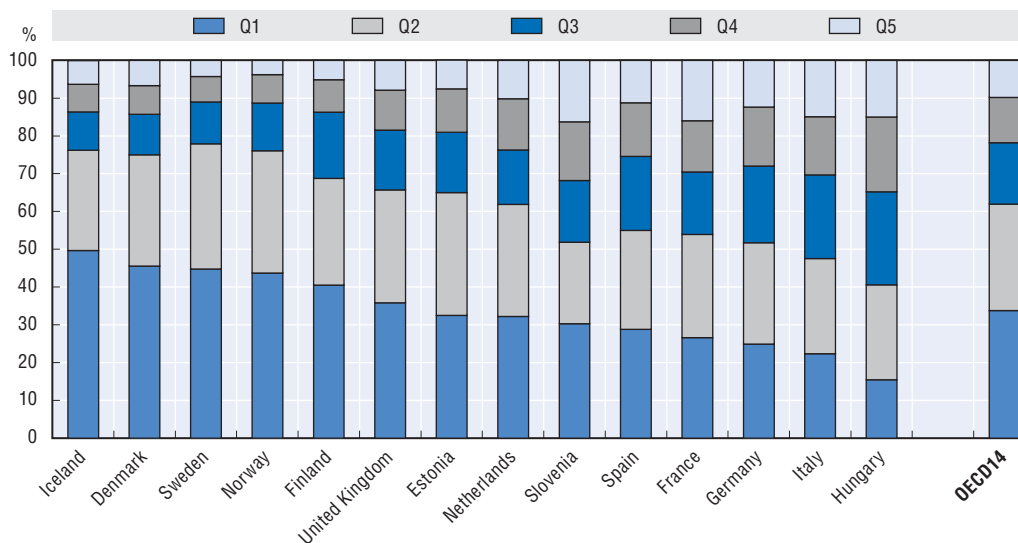
Figure 2.30. **Impact of in-kind services on households' disposable income across the quintiles of the income distribution, total population, 2007**
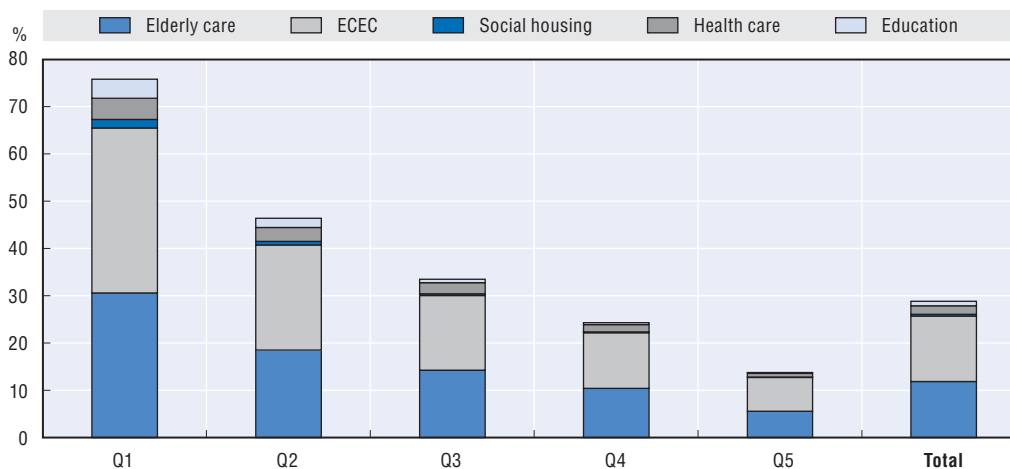
Source: Verbist, G., M. Förster and M. Vaalavuo (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 130, OECD Publishing, *http://dx.doi.org/10.1787/5k9h363c5szq-en*.

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Figure 2.31. **Distribution of long-term care in-kind benefits over quintiles**

Source: Verbist, G., M. Förster and M. Vaalavuo (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 130, OECD Publishing, *http://dx.doi.org/10.1787/5k9h363c5szq-en*.

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calculated for disposable income without public services, but decline to between 3% and 10% when services are factored in.[39] Results also reveal the key part that public services can play in helping the elderly maintain adequate incomes over retirement. Figure 2.32 shows, in addition, that where services have the greatest income-enhancing effect, old age poverty rates are lower.

Figure 2.32. **In-kind benefits enhance elderly incomes and reduce old age poverty rates, 2007**

Income advantage from public services for the over 65

% of over 65 with income below the 50% of equivalised median household income
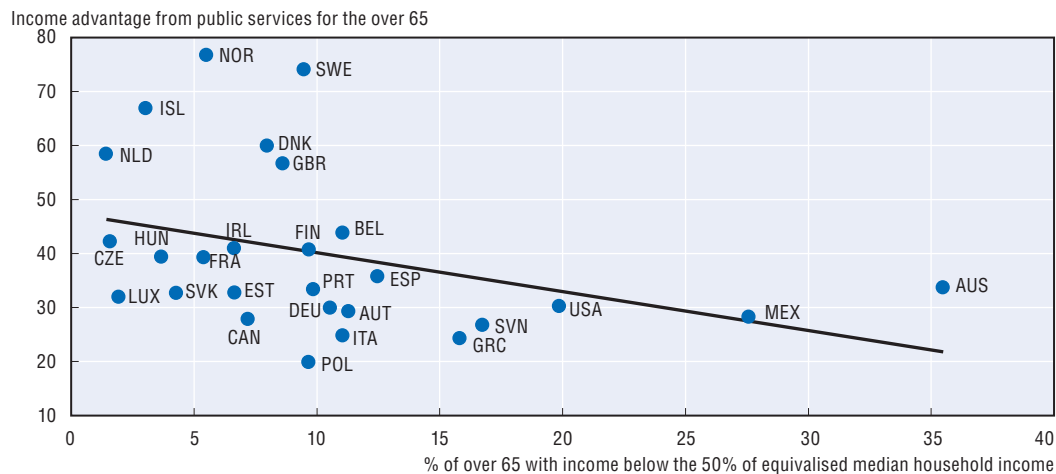
Source: Authors' calculation based on data from Verbist, G., M. Förster and M. Vaalavuo (2012), "The Impact of Publicly Provided Services on the Distribution of Resources: Review of New Results and Methods", *OECD Social, Employment and Migration Working Papers*, No. 130, OECD Publishing, *http://dx.doi.org/10.1787/5k9h363c5szq-en*, and data OECD Income Distribution Questionnaire.

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Broadening the income concept to include the value of publicly provided services is important for an accurate, comprehensive evaluation of the adequacy of retirement incomes. Across the OECD the mix of cash transfers and in-kind services varies from country to country. Some make wider use of public services and recipients' incomes increase substantially when they are taken into account. As the analysis has shown, services play a crucial role in elderly well-being and should therefore be an integral part of any adequate retirement income package.

Summary and conclusions

This chapter examined the adequacy of retirement incomes from a wider perspective than merely the pension entitlements of current and future retirees. As living standards in retirement are also influenced by a range of other factors, the analysis looked at the impact of housing wealth, financial wealth, and the value of publicly-provided services on the adequacy of elderly people's incomes.

Multiple sources of retirement income

In OECD countries the average monetary living standards of older people, aged 65 and over, are generally high today. They stand at about 86% of the total population's level of disposable income, ranging from close to 100% in Luxembourg and France to just under 75% in Australia, Denmark, and Estonia.

Retirees in OECD countries receive their incomes from different sources, which vary widely across countries. In some, such as France, Hungary, and Austria, public transfers make up the bulk of retirement incomes. In other countries, capital incomes – especially from private pension schemes – play an important role. Examples are Canada, Israel, and the Netherlands. In other countries still, like Chile, Japan, Korea and Mexico, many older people work and earn a substantial share of their retirement income in the labour market. Everywhere, however, low-income retirees rely almost exclusively on public pensions and other income transfers.

Reduction of old-age poverty: a policy success

The reduction of old-age poverty over the decades has been one of the greatest successes of social policy in OECD countries. In 2010, the average OECD poverty rate among the elderly was 12.8% – down, in spite of the Great Recession, from 15.1% in 2007. Only Canada, Poland and Turkey saw a rise in old-age poverty over that period. In many countries, younger age groups are now at higher risk of poverty than the elderly. Low old-age poverty is also reflected in the relatively low numbers of older people who receive safety-net benefits in OECD countries.

That being said, through stigma, lack of information on entitlement, and other factors, not all elderly people who need last-resort benefits claim them. There is thus a certain degree of hidden old-age poverty.

Homeownership is an asset in retirement

To paint a more complete picture of pensioners' retirement needs, this chapter examined other factors which affect their living standards: housing wealth, financial wealth, and access to publicly-provided services, such as health and long-term care services. A major obstacle to a comprehensive assessment, however, is the lack of internationally comparable data. Bearing this constraint in mind, the analysis showed that homeownership can make a substantial contribution to pensioners' living standards – they enjoy the financial advantage of living in their own homes and can, when necessary, convert their property into cash through sale, rent, or reverse mortgage schemes.

Homeownership rises with age: on average, 77% of over-55s are homeowners, compared to 60% of under-45s. However, the extent to which the elderly have or have not paid off their mortgages varies considerably from country to country. More than one in five elderly homeowners in Europe are still paying off their mortgages. In Switzerland, only 40% of older people are outright homeowners, compared to more than 90% in Hungary and the Slovak Republic, and around 80% in Australia, Chile and the United States.

In European countries, homeownership is more common among higher-income groups. Yet, even among the poorest 10% of the elderly, almost 70% are homeowners. In Canada, more than 90% of over-70s in the highest income decile own their homes. Indeed, outstanding mortgage obligations are bigger and more widespread among higher-income retirees than among poorer ones.

Imputed rent boosts income, drops poverty

The monetary benefit that people derive from living in their own homes is known as "imputed rent". Different countries use different methods to calculate it, so comparing the results internationally is difficult. Nevertheless, adding imputed rent to the disposable income of the elderly increases it by an average of 18% in countries where data are available. The country where housing makes its biggest contribution to disposable income, increasing it by 29%, is Spain.

Adding imputed rent also reduces old-age poverty rates. Poverty among the elderly declines in selected European countries by an average of 7 percentage points against a fixed poverty threshold of 50% of the median equivalised disposable income. It also falls – by 3.5% – against a floating poverty line drawn from a higher median income that includes imputed rent. Again, data are available only for a limited set of countries, which makes OECD-wide cross-country comparisons impossible.

Housing wealth can also provide a stream of income in retirement through the use of reverse mortgages. Such schemes are not yet very common, however, and only Australia, the United Kingdom, and the United States have made any real use of them and even then, only sparingly. Reverse mortgages remain a comparative rarity in Europe for the time being, though they are set to become more widespread in the future, particularly to finance long-term care needs.

While housing wealth can substantially raise retirees' living standards, owning a house does not necessarily mean that they need less resources in old age. First, housing is not only an asset, but a consumption good, too. Owners need to spend money on the upkeep of their homes, costs that should be factored into their incomes. Second, housing values change over time and place, while population ageing is poised to set in motion strong social and economic shifts that will introduce considerable uncertainty into retirement planning. Third, housing owned by lower-income groups is likely to be of considerably lower value than the properties of the richest retirees. Whether turning housing wealth into an income flow is a feasible option will likely depend on the homeowner's position in the income distribution.

Data scarcity hampers analysis of retirement potential of wealth

The paucity of consistent data is most acute with regard to the financial wealth of the elderly. There are little recent internationally comparable data on which to base analysis. Using what evidence is available, this chapter finds that wealth of the elderly is very unequally distributed and that there are wide wealth gender gaps among the over-65s that are to the disadvantage of older women. As a consequence, the potential contribution of drawing down financial wealth to bolster retirement income is limited. Those most likely to reap the benefits are rich retirees. But is not the adequacy of their retirement income and standards of living which concerns policy makers.

Housing and financial wealth supplement public pension benefits. They do not, in their own right, appear to be sources of income that can be expected to replace a proper pension income. Better internationally comparable data are urgently needed to explore in greater detail how housing and financial wealth can contribute to the adequacy of retirement incomes.

Public services: Retirement enhancers

Publicly provided services, on the other hand, increase retirees' incomes considerably. This is especially true of healthcare and long-term care services, though countries also provide other services such as free transport, TV licences, or free participation in cultural and social activities. Publicly provided in-kind services add value to retirement: they enhance the income of the elderly by an average of 40%, compared to 24% among the working-age population. In some Nordic countries, the share of services in the disposable income of the elderly is as high as 70%. The analysis presented here also shows that services benefit the poorest retirees much more than they do richer elderly households.

Public in-kind services reduce poverty in the total population by an average of 46%, while old-age poverty is lower in countries where the provision of services is strong. The contribution of long-term care, however, which by definition is focused on the elderly, is still small. Few countries are spending much on it as yet, although they will be in the future. Public support is set to play a more and more crucial role in preventing old-age poverty among people requiring health and long-term care services.

The outlook for pensions

There are number of adequacy-related factors which this chapter has not addressed in detail but are the focus of ongoing work in the OECD. As public pension entitlements will remain the backbone of retirement income provision in most countries, it is essential that people should continue paying in contributions to build future pension entitlements and ensure coverage.

The OECD analysis of pension reforms in the previous chapter shows that future entitlements will generally be lower and that not all countries have built in special protection for low earners. People who do not have full contribution careers will struggle to achieve adequate retirement incomes under public schemes. The same is true for private pension plans, perhaps even more so, given that they are not commonly redistributive. For some countries, pension system coverage in a broader sense is also still a challenge. Examples are Mexico, Chile, and Turkey, as well as many emerging economies, where coverage is low due to large informal sectors.

Although these policy challenges have not been covered here, the OECD publication *OECD Pensions Outlook* addresses them in detail.

Notes

1. See for example European Union (2012a) and Whitehouse et al. (2011).

2. These indicators are published both by Eurostat and the OECD. See for example OECD (2008) and OECD (2009, 2011a, 2011b).

3. Administrative data are best used to compute current replacement rates which show what current pensioners actually get from the pension system. Pension replacement rates can also be used to assess future pension benefits by applying current rules to workers who will be retiring in the future; this method is the focus of the OECD's pension models.

4. Haig (1921) and Simons (1938). Goode (1977) argues persuasively that von Schanz anticipated the Haig-Simons definition in 1896 and so prefers "Schanz-Haig-Simons".

5. Non-recurring incomes derive from infrequent or unusual events such as the sale of assets, the settlement of insurance contracts, etc.

6. A capital gain is accrued when the value of the asset increases. The gains are realised when the owner sells the asset and cashes in the gains.

7. Smeeding and Moon (1980) have compared alternative methods for the evaluation of a set of services, finding negligible differences between the cost of production and more subjective metrics such as the utility value.

8. See OECD website, "Going social: the great tax-benefit balancing act" on wages and benefits indicators, *www.oecd.org/els/benefitsandwagesoecdindicators.htm*.

9. Eurosystem (2009) provides information on housing taxation across European countries (see also EMF, 2012). Information on the taxation of the different forms of assets is more scarce. The International Organization of Pension Supervisors (IOPS) does, however, provide some (IOPS, 2008).

10. The scales take into consideration that households' needs do not grow proportionally with the number of family members (whether adults or children) (OECD, 2011b). Different methods may be used to determine the number of consumption units, many of which are reviewed in Atkinson et al. (1995). The factors commonly taken into account for assigning values to units are the size of the household and the age of its members (whether adults or children). The scales most commonly used are:

    ● The OECD-equivalence scale, which assigns a value of 1 to the first household member, of 0.7 to each additional adult, and 0.5 to each child.

    ● The OECD-modified scale which assigns a value of 1 to the household head, 0.5 to each additional adult member, and 0.3 to each child.

    ● The square-root scale which divides household income by the square root of household size.

11. For example, in Canada, being "unattached" is the single biggest risk factor for low income among the elderly: about 80% of low-income seniors are unattached.

12. Because both the equivalence scales and the thresholds used differ, the Eurostat and OECD poverty measures do not overlap.

13. Currently, the structure of the EU-SILC database allows the analysis of material deprivation across five main domains or groups of items: *i)* economic strain; *ii)* economic strains linked to accommodation; *iii)* (enforced lack of) durables or consumption deprivation; *iv)* housing deprivation; and *v)* the environment of the dwelling. Other authors distinguish between "basic" and "secondary" forms of deprivation. Recent studies by Eurostat, for example, use the housing and environment dimensions of deprivation in the primary indicator (see Guio and Maquet, 2007).

14. This number is likely to be lower among the entire population, the 87% referring to tax-filers only.

15. Recent estimates of old-age poverty in the United States measured with the new supplemental poverty measure (SPT) suggests that it is quite close to the "traditional" estimate, around 15% or 16%. But the age composition differs: according to SPT, old-age poverty is higher (15%) than the traditional measure (9%) – see Figure 5 in *www.census.gov/prod/2012pubs/p60-244.pdf*. The main difference between the official estimate and the SPT is that the latter factors in taxes and some in-kind transfers (Short, 2012).

16. See also, Flores Rodriguez (2009), and Salles and de la Paz López (2008).

17. In the United States and Australia, the threshold to determine the housing cost overburden is generally set at 30% of household disposable income.

18. See also Moriizumi, and Naoi (2012).

19. For example, the Australian Bureau of Statistics (ABS) uses hedonic regression to estimate the market value of the rental equivalent of an owner-occupied dwelling (ABS, 2008). Data on the rents paid by private tenants are regressed on some dwelling characteristics (e.g. location and dwelling structure) and the estimates are subsequently used to produce imputed values for the rental equivalence of owner-occupied and other dwellings rented at below-market values.

20. See also Brown et al. (2010), Milligan (2008), Lafrance and LaRochelle-Côté (2011), Pendakur (1998 and 2001).

21. This category should, for example, include subsidies for homeowners for refurbishment and maintenance work (e.g. for energy efficiency), and tax deductions granted on interest paid on mortgages, benefits for tenants who rent accommodation at below-market prices. Subsidies designed to encourage the building of homes for particular groups of individuals should also be considered.

22. The size of rental markets varies across countries from less than 10% in the Eastern European countries, Iceland, and Spain to nearly 40% in Germany.

23. Another reason may be that the rental market is relatively small and the share of households living in reduced-rent or rent-free dwellings is significant, as in Poland and the Czech Republic.

24. Examples are Reifner et al. (2009a and 2009b) and Reifner et al. (2010) who analyse the market in Europe; Ong et al. (2013a and 2013b) who compare the schemes in Australia, Finland, Germany, the Netherlands, the United Kingdom and the United States; Coda Moscarola et al. (2012) who compare the market in Australia, Italy, New Zealand, the United Kingdom and the United States; and Davey (2007) who compares the schemes in Britain and New Zealand. See also Rossi and Sansone (2013) and Mitchell and Piggot (2003).

25. Ong et al. (2013a and 2013b) refer to housing equity withdrawal schemes (HEW).

26. See also Reifner et al. (2010).

27. The results also suggest that housing could have a sizeable income-enhancing effect in Italy because many low-income households are homeowners. For example, Italy's national Inland Revenue agency (the Agenzia delle Entrate) reported that 71% of homeowners declare total revenues of below EUR 26 000 and that they account for 79% of total taxpayers. One-quarter of those with revenues below EUR 10 000 are also homeowners (see Agenzia delle entrate, 2012).

28. As the authors note, the present discounted value of a home depends on the interest rate and life expectancy. Obviously, for reasons of simple algebra, the value is high when life expectancy is short and the interest rate low. An interest rate of 8% would bring the present value of the same home for the same 65-year old individual down to EUR 34 843 and an interest rate of 10% would bring it down to EUR 24 835 on average.

29. For reasons of scale Switzerland is not reported in Figure 2.18: the value of a home is the highest at more than EUR 870 000. The annuities, too, are high – more than EUR 23 000 with an interest rate of 6% and EUR 15 000 with an interest rate of 10%.

30. The poverty rate is defined with respect to the Eurostat poverty threshold in 2005.

31. Assume, for example, average housing equity for a 65-year-old in 2004 and 2006 of around EUR 146 000. With a life expectancy of 18.8 years (as calculated by Eurostat) at the age of 65 and an annual interest rate of 6%, the present value of the home would be around EUR 49 250. With an interest rate of 8% the present value of the house for the same 65-year-old drops to EUR 34 843, while with an interest rate of 10% it falls to EUR 24 835. To take into account the preferences of the financial providers, the authors also assume that 5 years are added to the life expectancy of the borrowers. As a consequence, a borrower whose house is worth EUR 100 000 and who has a life expectancy of 12 years would obtain an annuity of EUR 3 544 instead of EUR 5 928 with a 6% interest rate. The annuities are computed using the following formula:

$$Annuity = House\ value\ \frac{r}{(1 + r)^{life\ expectancy\ +\ 5}\ _{-1}}.$$

Where r is the interest rate applied and life expectancy is the life expectancy of th. e youngest member of the couple.

32. The fiscal treatment of wealth goes beyond the scope of this report, though it may heavily affect investment choices. Broadly speaking, there are three main types of wealth taxes: 1) a tax on the net worth of wealth; 2) a tax on capital transfers (such as inheritance tax gift tax); 3) a tax on capital gains. Many such taxes exist in European and OECD countries, although the revenues they raise are relatively small. According to OECD (2011d), 1% of total revenues were derived from wealth taxes in the OECD in 2010. The most common form of wealth taxation is still the capital gains tax, while the other two kinds of taxes are not used as widely as may be expected. Indeed, most OECD countries are moving away from them. As pointed out by the Center on Household Assets and Savings Management (CHASM, 2013), while half of OECD countries had wealth taxes in 1990, ten years later only one-third did,, and by 2010 only three countries (France, Norway, and Switzerland) still maintained them. However, with the onset of the crisis many countries have reintroduced wealth taxes even if just temporarily (e.g. Iceland and Spain). See also the Institute for Fiscal Studies (IFS, 2011).

33. The data in the LWS come from surveys conducted in the following years: Austria, 2004; Canada, 1999; Finland, 1998; Germany, 2006; Italy, 2004; Japan, 2003; Luxembourg, 2007; Norway, 2002; Sweden, 2002; the United Kingdom, 2000; the United States, 2000.

34. Finally, some analyses are based on the 1st and 2nd waves of the SHARE survey (Coda Moscarola et al., 2012 and 2013).

35. The HFCS data contain comparable information on the wealth of households and individuals in fifteen European countries belonging to the Euro zone. Among these are Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal, the Slovak Republic, Slovenia and Spain which are considered in the analysis. The demographic and socio-economic characteristics of the respondents are also recorded in the survey and can be useful in analysis of wealth. See Eurosystem HFCN (2009, 2011, 2013a, 2013b).

36. The gap is expressed as [1 – (mean of women's wealth/mean of men's wealth].

37. The definition of in-kind benefits encompasses services for the elderly, families and the disabled, healthcare, education, housing, and long-term care services.

38. Cash transfers comprise old-age pensions, pensions for survivors and the disabled, family allowances, unemployment checks, and other cash transfers.

39. Recent estimates by GAO (2011) on the Annual Social and Economic Supplements of the Current Population Survey suggests that when out-of-pocket medical costs are factored in the poverty rates for people aged 65 and over almost double in the United States, passing from 9% on the official poverty measure to 17% on the alternative measure which accounts for these costs.

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ANNEX 2.A1

Calculating the annuity

The method outlined here is borrowed from Disney and Whitehouse (2001). The best approach is to begin by considering it for a single person then extending it to a multiple-person household. The calculation for a single person is a simple actuarial one. The survival function, s – the probability that an individual is alive at some time t in the future – is expressed by:

$$S_t = \prod_{t=0}^{T} (1 - \lambda_t)$$

where λ is the hazard function (the probability of dying at a particular age conditional on surviving to that age).

The net present value of an income flow of one unit per period conditional on an individual still being alive is:

$$a_0 = \sum_{t=0}^{T} S_t \, (1 - z)^t$$

where z is the interest rate and the result, a, is known as the annuity factor. Dividing wealth holdings in period zero by the annuity factor yields the proportion of wealth that the individual can safely spend now while maintaining a constant (discounted) level of consumption and leaving net wealth of zero at death.

The analysis becomes more complicated for a household of two adults. The starting point is a joint life annuity that pays one unit when either (or both) are alive. The formula for the annuity factor then becomes:

$$a_0 = \sum_{t=0}^{T} (S_{1t} S_{2t} + (1 - S_{1t}) S_{2t} + S_{1t} \, (1 - S_{2t})) \, (1 - z)^t$$

where the survival functions are indexed 1.2 for the two people in the household.

However, a household with only one person needs fewer resources to achieve the same living standard than a household of two people. Put another way, a household with one person with the same total income as a household of two people can enjoy a better standard of living. This is captured by an equivalence scale. It is also recognised in pension systems, which pay a lower rate of benefit to survivors.

A simple scale, in widespread use in international studies (including those of the OECD, 2008) is to divide household income by the square root of the number of household members. Thus,

$$Y_E = \frac{Y}{n^\varepsilon}$$

where Y_E is the household's equivalent income, Y is household income, n the number of members and ε is the equivalence elasticity, which we take to be 0.5 (as in OECD, 2008).

Applying the scale to the annuity calculation, we assume that the household spends less when only one of its members is alive than when both are. Thus,

$$a_0 = \sum_{t=0}^{T}(S_{1t}S_{2t}\sqrt{2} + (1-S_{1t})S_{2t} + S_{1t}(1-S_{2t}))(1-z)^t$$

where the square root of 2 implements the equivalence scale in the case where both household members are alive.

Extending the method to larger households quickly becomes problematic. While the formula contains three terms for the different permutations of survival with two members, it contains seven terms with three members, 13 with four people in the household, 21 with five, etc. This necessitates some simplification to keep the results tractable.

First, the calculations can be carried out on an income unit rather than a household basis. Each income unit consists of a maximum of two adults and their dependent children. This then raises the second issue: the treatment of children. It would be inappropriate to apply a full life cycle annuity calculation to the children in a household as well as the adults, since they are expected to leave the household and set up on their own. It is therefore assumed that children share in the household's wealth until they reach majority (which is taken for the moment to be 18 years of age). A second simplification is that children survive until the age of 18 rather than applying the relevant mortality table. This substantially reduces the computational burden and the price in terms of accuracy is insignificant. The actual annuity factor from birth to age 18 is 99.43% of the term certain annuity at the same age.*

To illustrate the technique, the example of a household comprising a couple aged 43 and 37 with two children aged 10 and 8 is employed. The results are shown in Figure 2.A1.1. Not far into the future, mortality rates are very low and so the assessment of household needs (the survival probabilities multiplied by the relevant equivalence scales) are close to the equivalence scale values. Thus, when both children are under 18, the value is close to 2 (the square root of 4) and with just one child, 1.73 (the square root of 3). When both children are 18, the curve drops to 1.34, a little below the equivalence scale of 1.41, because the probability of one partner dying before this point is no longer negligible. The curves then diminish slowly to zero. The annuity factor can be visualised as the size of the area under the summation curve (Figure 2.A1.1).

The second part of the actuarial calculation is discounting future income flows using a 2% discount rate. Applying this to the survival probabilities and equivalence scales in Figure 2.A1.1 gives the results in Figure 2.A1.2. The result is the sum of the discounted equivalent flows. In this example, the result is 45.6. Thus, if the household had financial wealth of EUR 20 000, this would add EUR 20 000/45.6 = EUR 440 to the household's

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* A large part of this reflects mortality at birth, which is 0.4% in the mortality database used here. Most children observed in household surveys are not new-borns, so the actual error is even smaller than suggested by this calculation.

Figure 2.A1.1. **Actuarial calculation for the example of a household:
Survival and equivalising**
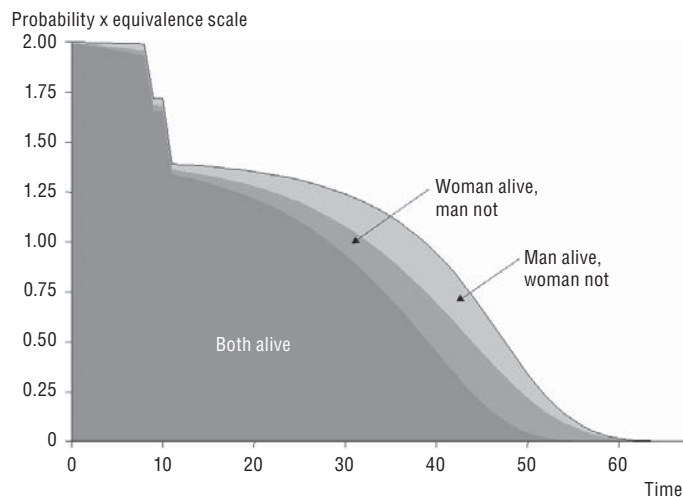
Source: Authors calculations based on the OECD pension models.

Figure 2.A1.2. **Actuarial calculations for the example of a household: Discounting**
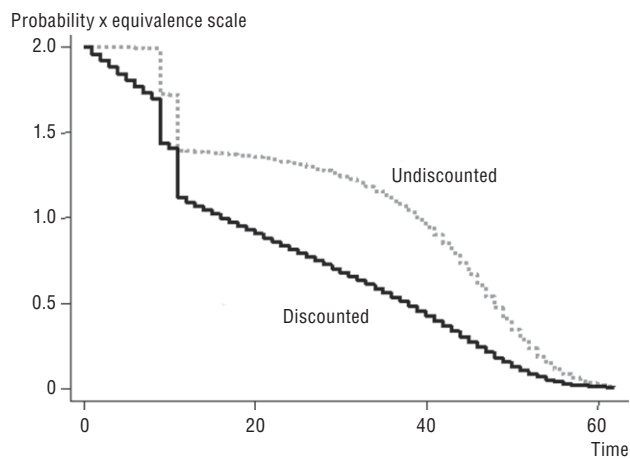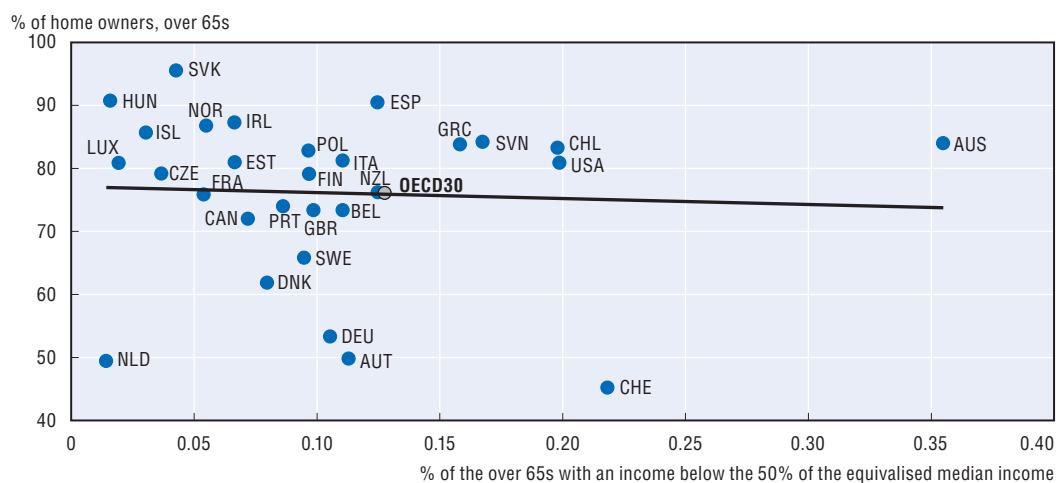

Source: Authors calculations based on the OECD pension models.

equivalent income from non-capital sources (transfers, labour income, etc.). For the purpose of comparison, take the case of a single man of the same age (43). The annuity factor result in this case is 27.1. He therefore enjoys greater command over resources: the same financial wealth would add EUR 740 to his income from other sources.

ANNEX 2.A2

Additional figure

Figure 2.A2.1. **Over-65s at risk of poverty and rates of homeownership, late 2000s**

Note: The poverty rate shown in the figure captures only partially the risk of poverty in old-age because non-cash benefits and the value of publicly provided services are not included.

Source: Authors' calculation based on data from EU-SILC (Revision 1 of March 2013) and *OECD Income Distribution Database*. For Australia, Chile, Canada and the United States data on homeownership are derived from national sources.

StatLink ᡐᡅᡄᡑ *http://dx.doi.org/10.1787/888932936408*

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