

LIS

Working Paper Series

No. 777

Poverty in Old Age

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October 2019



CROSS-NATIONAL
DATA CENTER
in Luxembourg

Luxembourg Income Study (LIS), asbl

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This is a pre-print working paper that now has been published as:

Ebbinghaus, B., Nelson, K., & Nieuwenhuis, R. (2019). Poverty in old age. In B. Greve (Ed.), *Routledge International Handbook of Poverty*. New York, NY: Routledge (pp. 257–267).

Abstract: While the financial sustainability of pension systems has been high on reform agendas, the adequacy of retirement incomes has only recently come into focus. This chapter analyses old-age poverty from a comparative and longitudinal perspective using repeated waves of cross-sectional micro-level income data from the Luxembourg Income Study (LIS). We focus on high-income OECD countries that experienced demographic ageing and substantial pension reforms since the mid-1980s, and analyse old age poverty in terms of relative income positions and purchasing capacity. Overall, there has been a secular trend towards a decline in old age poverty, which has converged towards the poverty rates observed in the working age population. However, since ongoing pension reforms in several countries have reduced public benefits, fostered prefunded savings, augmented the retirement age, and strengthened the link between contribution histories and old-age incomes, we identify population subgroups that have difficulties in gaining sufficient pension credits or savings into individual pension plans during their working lives to escape poverty in old age, including women, migrants, and those with lower education. We also present examples of poverty trends across synthetic cohorts in old age. Overall, we observe that more recent cohorts are better protected against poverty in old age compared to cohorts that were born longer ago.

1. Introduction

The reduction of old age poverty was a major aim in the post-war development of welfare states. However, income protection in old age is currently facing many challenges as a consequence of population aging and economic changes. While the financial sustainability of pension systems has been high on reform agendas in many affluent countries (sometimes referring to the ‘demographic time bomb’), the social sustainability of retirement income has only recently come into focus (Grech 2013; 2014; Ebbinghaus 2015). Financial sustainability is concerned with costs and affordability of future pensions, and it advances pension reforms that often include an emphasis on defined contributions, prefunding, private responsibility, extended retirement ages, and stricter access to early retirement and disability benefits. Social sustainability relates to issues of low income, economic hardship, and poverty, and is addressed in this chapter.

Most OECD countries have made important changes to their pension systems in order to make public expenditures more sustainable in ageing societies (for a review see Hinrichs & Lynch 2010). While these reforms may have been necessary for financial reasons, concerns are raised about the re-emergence of old-age poverty and low income among the elderly. All affluent countries have old-age safety nets in place that are intended to raise the incomes of the poorest elderly who have not been able to allocate sufficient contributions to secure an acceptable pension (Goedemé & Marchal 2016). However, available evidence indicates that these minimum pension benefits sometimes fail to protect the elderly from falling into poverty (OECD, 2015). There are different types of pension systems. Some combine universal basic benefits and supplementary occupational and private pensions, while others are based on contributory earnings-related benefits, often complemented with supplementary pensions and means-tested social assistance. Both types of pension systems are crucial for poverty prevention in old age. Funded occupational or private pensions are more likely to affect elderly incomes above the poverty line. For old age poverty, we therefore expect public pensions to be more important.

Little is known about the income position of the elderly across different countries. While the literature on poverty is extensive, the specific focus on old age poverty is limited – particularly when it comes to recent trends. In this chapter we therefore take stock of income developments among the elderly, focusing on changes in the lower part of the income distribution. It is well known that income distributions grew wider between the mid-1980s up to the mid-2000s, and

poverty increased in the majority of countries in the Western hemisphere. However, old age poverty diverged from these overall trends with fewer elderly people in poverty, which in part has been attributed to the success of pension policies to redistribute income between the rich and the poor, and over the life cycle (OECD, 2008)

Is poverty among the elderly still declining, thus showing a different trend compared to the working age population? Or is it possible to observe a shift in poverty statistics as countries have reformed their pension policies? Which elderly population sub-groups carry elevated poverty risks, and how are incomes changing as cohorts of elderly people are growing older? Is it possible to identify universal trends and patterns in old-age poverty that transcend national borders, or are developments in old-age incomes more nation-specific?

2. Concepts, measurements and data sources

The conceptualization and measurement of poverty is continuously discussed in research, and is acknowledged to be only one of many relevant aspects of quality of life (Walker, 2005). In analyses of high-income OECD countries, scholars often apply a relative perspective on economic hardships and evaluate whether incomes are adequate to maintain an average (or close to average) standard of living that in principle should allow people to participate in society (Townsend, 1979). Whether or not a person is defined as relatively ‘income poor’ is determined in relation to median incomes and their household composition. Persons living in households with incomes below a certain ‘poverty line’, defined as a particular fraction of median income, are classified as relatively income poor. Since relative income poverty is sensitive to the exact yardstick used to define when households are poor, in this chapter we use three poverty lines, measured as 40, 50, and 60 percent of median income. People living in households with incomes lower than these thresholds are considered to be poor, relatively speaking. The poverty threshold at 60 percent of median income is used by the European Commission to monitor social inclusion processes in the member states (i.e. the so-called “at-risk-of-poverty”, or AROP, threshold). Outside the EU, it is more common to use the poverty threshold at 50 percent of median income. The threshold at 40 percent of median income is sometimes used to analyse more severe forms of economic hardships.

In all our analyses, poverty counts are at the individual level, although income as such is measured at the household level. To adjust incomes for economies of scale within households, we divide household incomes by the square root of household size. The square root equivalence

scale is commonly used in comparative research, and it is also used by the Luxembourg Income Study (LIS) to generate their key figures on poverty and income inequality. Alternative scales developed by the OECD and Eurostat differ particularly in the weights attached to dependent children. Obviously, this is of less relevance for calculating old age poverty rates. All our analyses apply sampling weights, though we need to take notice that older institutionalized people and those who are frail are commonly not included or underreported in socio-economic surveys.

Relative poverty tells us how low-income households compare to those in the middle of the income distribution, irrespective of changes in real incomes (i.e. their purchasing capacity). We will therefore also analyse so-called anchored poverty rates, capturing changes in poverty while keeping developments in living standards constant (Atkinson et al. 2002). Instead of analysing how people compare to current median income, we here compare elderly incomes for all years to the poverty line observed in the mid-1980s (the first year of observation in our analyses of poverty trends). Poverty lines for subsequent years are only updated according to price developments. This estimation strategy allows us to compare how elderly incomes have developed in more absolute terms.

Comparative research on income distributions requires high-quality cross-national data. The empirical analyses in this chapter are based on LIS data. LIS (2018) is an international research infrastructure that harmonizes national micro-level income datasets to a common template, in order to optimize comparability between countries and over time. Although great efforts have been made to include middle-income countries in LIS, several of these middle-income countries have LIS data for only one or two years. Since we will analyse developments over a longer time period, the empirical analyses are restricted to longstanding OECD countries for which data are available in LIS from the mid-1980s and onwards. No alternative comparative data source allows for such an extended analysis of old age poverty, spanning almost three decades in most of our countries.

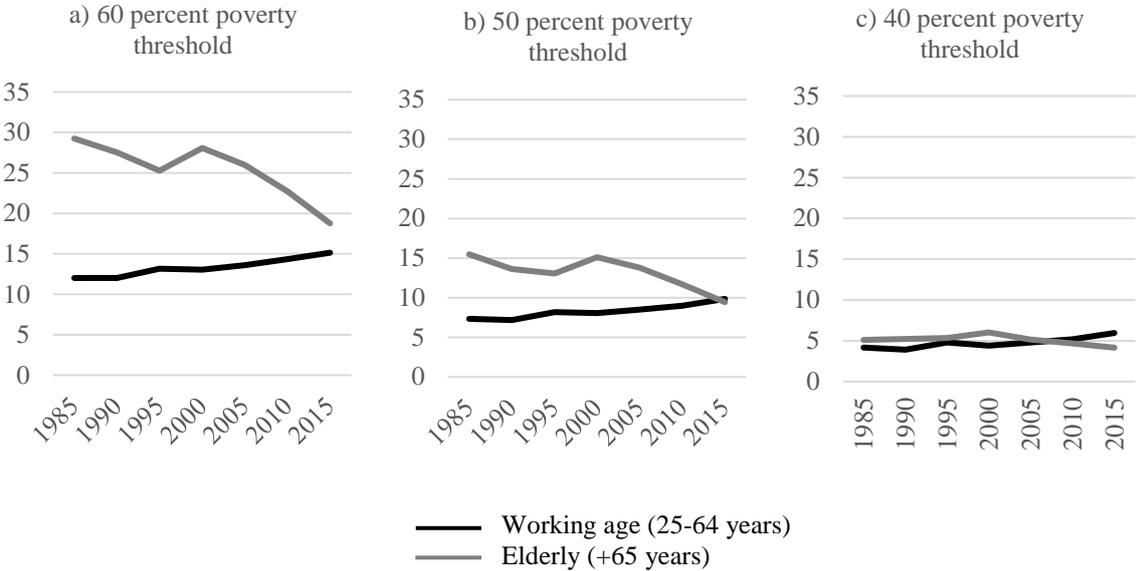
We analyse LIS data in five-year intervals from 1985 until 2015 (or closest year available). Austria, France, and Switzerland lack data for one of these time points. Greece and Ireland lack data for two time points. For these particular countries, data have been interpolated when possible. For Sweden, data for the two most recent time points were drawn from the Swedish income register (HEK). Sample sizes vary across countries, between 347,907 and 3,254

observations for Norway in 2013 and Ireland in 1987, respectively. More information about LIS, including years and countries in their database, is available online at their webpage.

3. Poverty trends

The relative income position of the elderly has improved over the last decades. Defining the elderly as 65 years and older, Figures 1a-c show relative old age income poverty as an average of 19 OECD countries for the period 1985-2015. As reference, the figures also show poverty rates for the working-age population (25–64 years). The lower-bound age restriction excludes many students and apprentices from the analysis.

Figure 1a-c. Relative income poverty in the working age (25-64 years) and elderly (65+ years) population, averages of 19 OECD countries, 1985-2015.



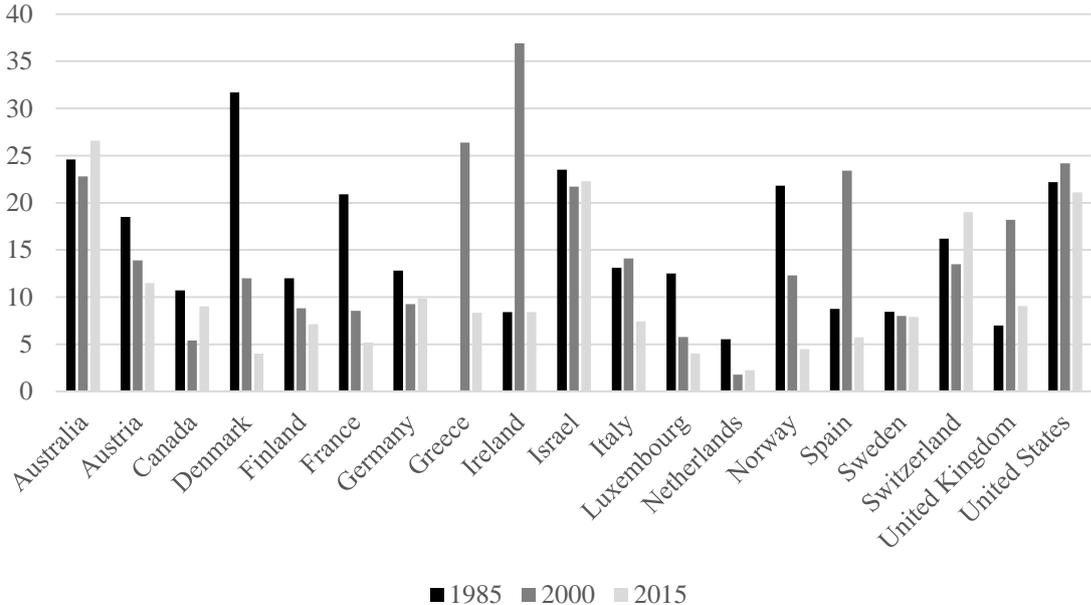
Source: LIS.

The relative income position of the elderly has improved substantially since the mid-1980s. With the exception of a short period around the turn of the Millennium, old age poverty shows a steady decline from its peak levels in the mid-1980s. This decline is particularly notable after the year 2000. At the 60 percent threshold, old age poverty declined from around 30 percent in the mid-1980s, to slightly below 20 percent in the more recent years. At the 50 percent threshold, the decline in old age poverty is somewhat less pronounced, but still substantial, with poverty being reduced from 15 percent in the mid-1980s to 10 percent in the mid-2010s. At the 40 percent threshold, old age poverty is even lower, down to less than 5 percent at the end of the period.

The working age population showed the opposite trend, with a slight increase in poverty. Relative income poverty used to be higher among the elderly than among those of working age, and this pattern was still observable in the mid-1980s. However, due to their different trends in poverty, the relative income positions of the elderly and those of working age have converged. Today, old age poverty at the 50 percent threshold is actually on par with the poverty rate observed in the working age population. At the 40 percent poverty threshold, the elderly even do slightly better.

Cross-country averages conceal differences between countries. *Figure 2* shows old age poverty in each of our 19 OECD countries at three points in time, around 1985, 2000, and 2015. In this analysis we only show results based on the 50 percent poverty threshold. Old age poverty is in the middle range between five and ten percent in Canada, Finland, France, Germany, Greece, Ireland, Italy, the United Kingdom, Spain, and Sweden. Lower poverty rates of less than five percent are observed in Denmark, Luxembourg, the Netherlands and Norway. At the other end, we find Australia, Austria, Israel, Switzerland, and the United States. In these countries, more than one out of every tenth elderly person live in a household defined as relatively income poor.

Figure 2. Old age poverty 1985, 2000, and 2015 (or closest years) in 19 OECD countries (50% poverty threshold)



Source: LIS.

Only three countries diverged from the overall decline in old age poverty observed above. In Australia, Switzerland and the United Kingdom old age poverty increased by 2 or 3 percentage points since the mid-1980s. A few countries managed to reduce old age poverty quite substantially. In Denmark, France, Greece and Norway, poverty declined by more than 20 percentage points. Denmark developed an effective combination of generous universal basic pension benefits and growing supplementary funded pensions (Anderson, 2004). Unskilled public sector workers were the first to negotiate a pension deal in the late-1980s, followed by metalworkers in the early-1990s. The coverage rate for occupational pensions rose from about one third in the 1970s, to nearly 90 percent in the late 1990s (Andersen, 2011). France made several adjustments to their pension policies in the 1970s, making policies towards the elderly more generous and inclusive. Maximum pension benefits were raised, pension credits were provided to mothers, and participation in occupational schemes was made compulsory for private firms (Naczyk & Palier, 2011).

The sharp decline in Greece, though we lack data before the mid-1990s, is to some extent a consequence of the economic crisis and mass unemployment since the late-2000s, which exerted a downward pressure on household incomes in the working age population and lowered the median income used in the calculation of relative income poverty. Norway substantially reformed their pension system in 2011 by introducing clear elements of defined contributions. Although minimum pension benefits have become more generous in Norway, the substantial decline in old age poverty observed in our analysis is most likely due to the continued maturation of the old national insurance pension system, in combination with higher labour force participation of new female cohorts entering retirement (Pedersen, 2017).

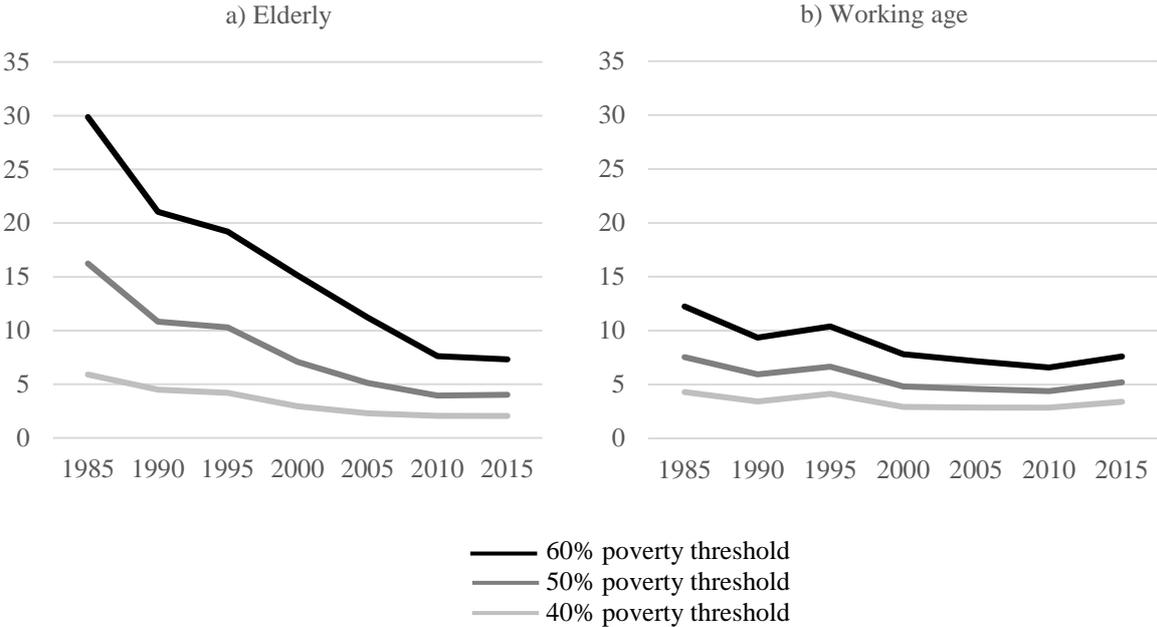
Ireland and Spain also show extraordinary developments. In both countries, relative income poverty peaked among the elderly at the turn of the new Millennium, after which there were substantial declines in old age poverty. During the economic boom of the Irish economy from the mid-1990s up to 2001, pension benefits fell short of developments in incomes from work and capital, making many elderly households relatively less well-off economically (Layte, 2004). The reversal of the poverty trend in Ireland is difficult to fully explain. However, it should be noted that in the mid-1990s, Ireland initiated a process to strengthen the basic state pension, which over time became more effective in reducing old age poverty (Russell et al., 2010). The rise in old age poverty in Spain up to the mid-2000s is very much related to a growing number of pensioners with insufficient contributions for a full pension. Many older

people were also left behind due to a rapid growth of real wages prior to the global financial crisis beginning in 2007/2008 (OECD, 2011).

Anchored poverty

A common objection against the use of purely relative measures of income poverty is that they do not take into account possible increases in living standards. Figure 3 shows the ‘anchored’ poverty rate as an average of 19 OECD countries (1985–2015), where poverty lines are anchored according to the median income in the first year of observation (mid-1980s or first available wave). We plot the anchored poverty rate for the elderly and those of working age separately.

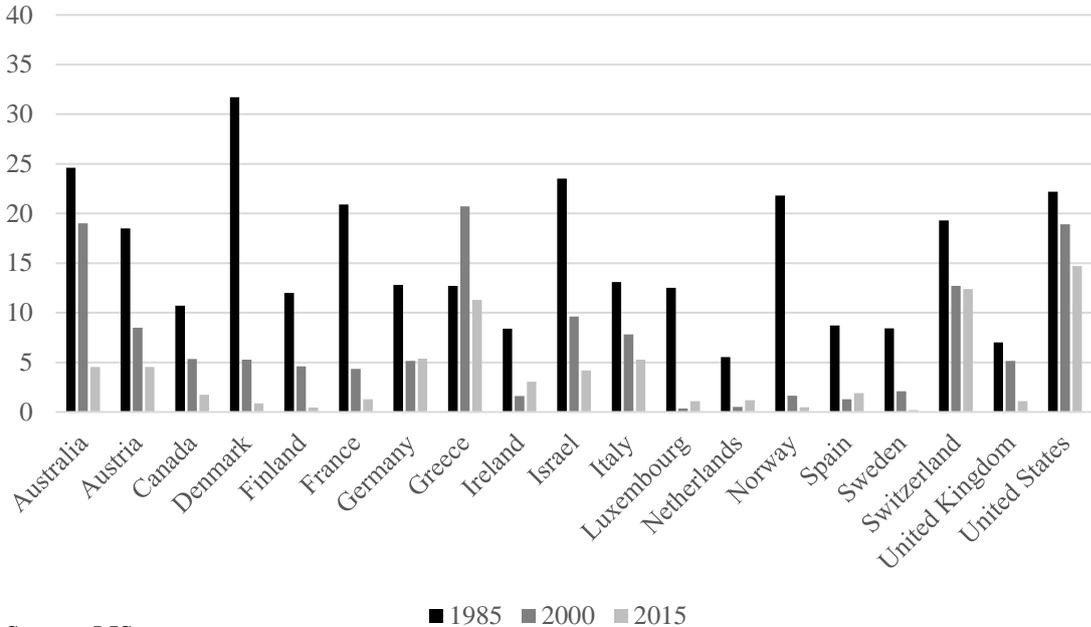
Figure 3a-b. Anchored poverty 1985–2015 in the elderly population (65+ years) and among those in working age (25–64 years) at various thresholds in 19 OECD countries.



Source: LIS.

Anchored poverty has declined substantially among the elderly, also in those countries where (relative) old age poverty increased (*Figure 4*). In all countries, elderly incomes seem therefore to have benefited positively in real terms, despite austerity measures that slowed down benefit increases in some countries. However, Greece shows a peak in anchored poverty in the 2000s, something that probably reflects the scale and depth of the sovereign debt crisis faced by Greece in the aftermath of the financial crisis of 2007/08. Due to missing data for the earliest years, poverty in Greece is here anchored to median incomes in the mid-1990s. Anchored poverty shows a more moderate decline among those of working age, suggesting that the purchasing capacity of the elderly has caught up with developments in the working-age population.

Figure 4. Anchored old age poverty 1985, 2000, and 2015 (or closest years) in 19 OECD countries (50% poverty threshold).



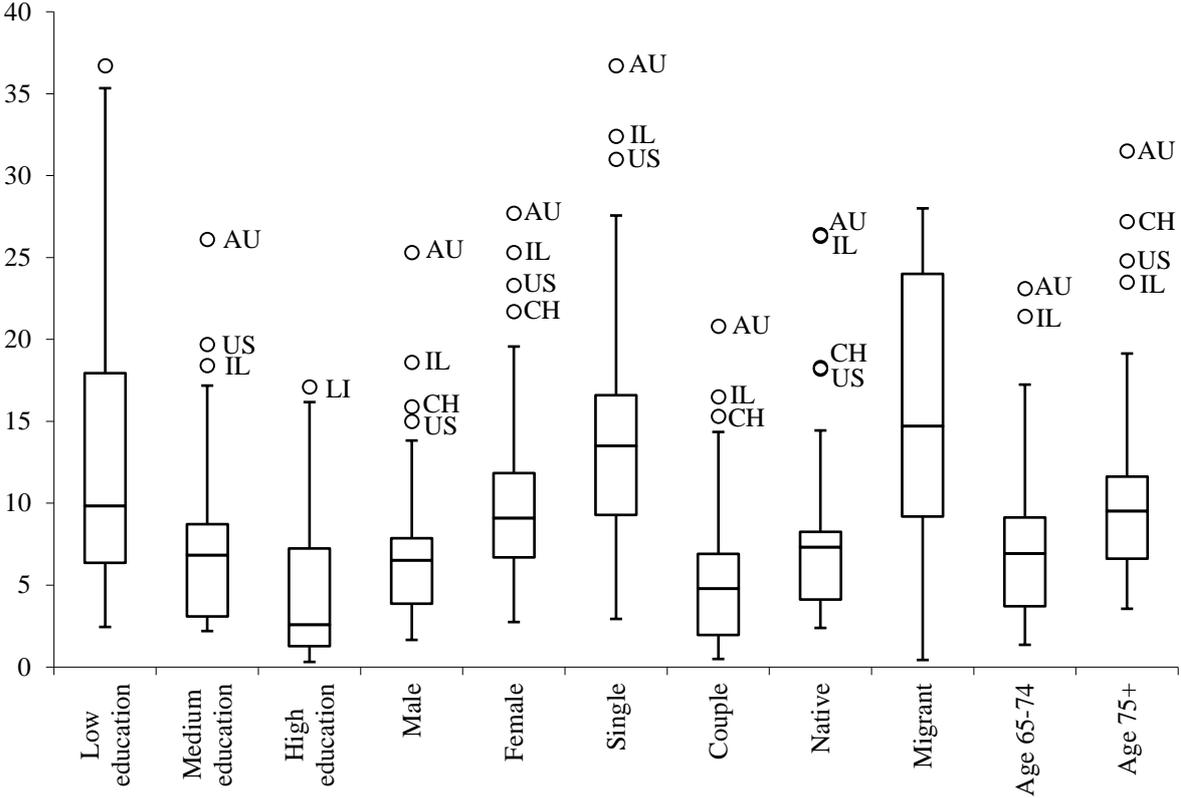
Source: LIS.

Old age risk groups

Poverty risks are not equally distributed among the elderly. *Figure 5* shows old age poverty by major risk groups in 19 OECD countries (around 2015 or the most recent year). Once again, we present the 50 percent relative poverty threshold. Using boxplots that order poverty rates from the highest to the lowest scores along the vertical axis, the horizontal line in the box represents the median. The lower edge of the box is represented by the 1st quartile, and the top by the 3rd quartile. Thus, the box represents the middle half (50%) of our countries. The upper vertical line shows the range of scores that is within 2.5 times the width from the median to the top of

the box (the inter-quartile range), while the lower vertical line shows the opposite. The circular dots outside the box represent countries that do not fit the general pattern observed in our data.

Figure 5. Boxplots of relative income poverty (50% threshold) by old age risk group in 19 OECD countries (around 2015 or most recent available data).



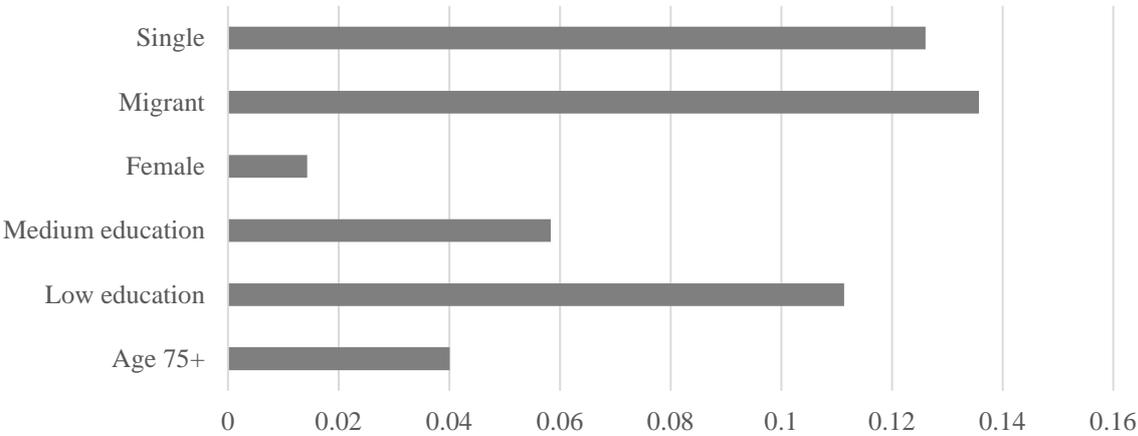
Source: LIS.

Relative income poverty among the elderly is higher among those with lower education, something that probably reflects differences in earnings and pension contributions during economically active years. It also increases with age, being higher for the oldest old (75+ years) who were economically active in periods when pension systems were less matured. Relative income poverty in old age is particularly high among single persons. Widows are overrepresented in this group due to greater longevity than men (not shown). Elderly migrants are more likely to be relatively income poor than natives, something that probably reflects shorter contribution spells of first-generation migrants, but potentially also the commonality of precarious employment in this group. Another risk group are elderly women, which has brought attention to the gender dimension of pension reform (Daly, 2011). Gender differences in old

age incomes reflect several factors, including different labour force participation rates of men and women, gender differences in work interruptions and part-time work due to caring responsibilities, gender pay gaps, lower participation of women in occupational pensions and private pension plans, the greater likelihood of early retirement of women, gender differences in longevity noted above, and cutbacks to survivor’s pensions.

As already noted, several of the social risk factors above are interrelated. To assess the net contribution of each factor, we estimated a simple linear probability model pooling all country data for the most recent waves (around 2015). *Figure 6* shows the beta coefficients, using the same definition of relative income poverty as above. All coefficients are statistically significant at the 1 percent level. The beta coefficients (multiplied by 100) can be interpreted as the additional poverty risk in percentage points associated with each factor – net of the effects of the other variables.

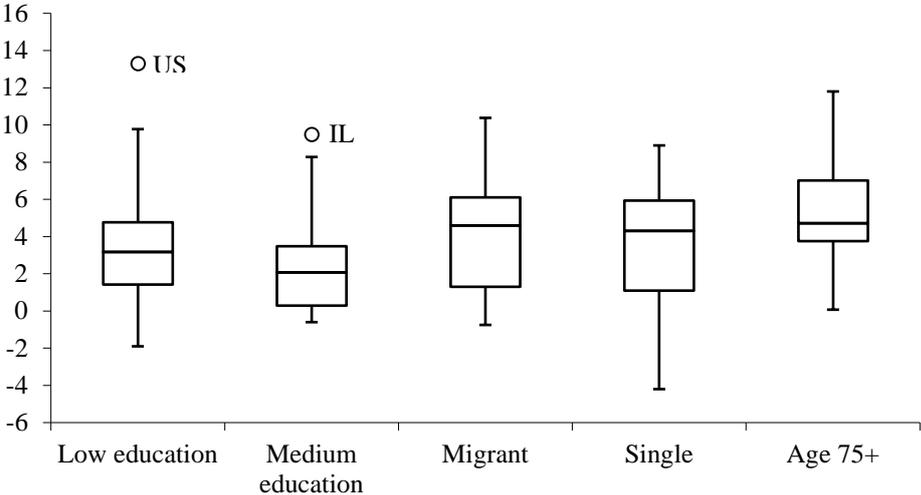
Figure 6. Linear probabilities of relative income poverty (50% threshold) in different elderly (65+) risk groups in 19 OECD countries, around 2015.



Source: LIS.

Education, migration background and household composition (single vs. couple) are all strongly associated with old-age poverty. By comparison, the net effect of gender is much smaller, which can be explained by the substantial overlaps between risk factors (women are overrepresented in single elderly households, elderly women are less educated than elderly men, and so forth). In Figure 7, we therefore show relative income poverty by gender in different elderly risk groups, using the 50 percent poverty threshold. The results indicate that old age poverty is strongly gendered. For all risk factors, elderly women are on average more likely to be relatively income poor than elderly men.

Figure 7. Difference between poverty rates (50% threshold) of women and men, by risk group in 19 OECD countries (around 2015 or most recent available data).



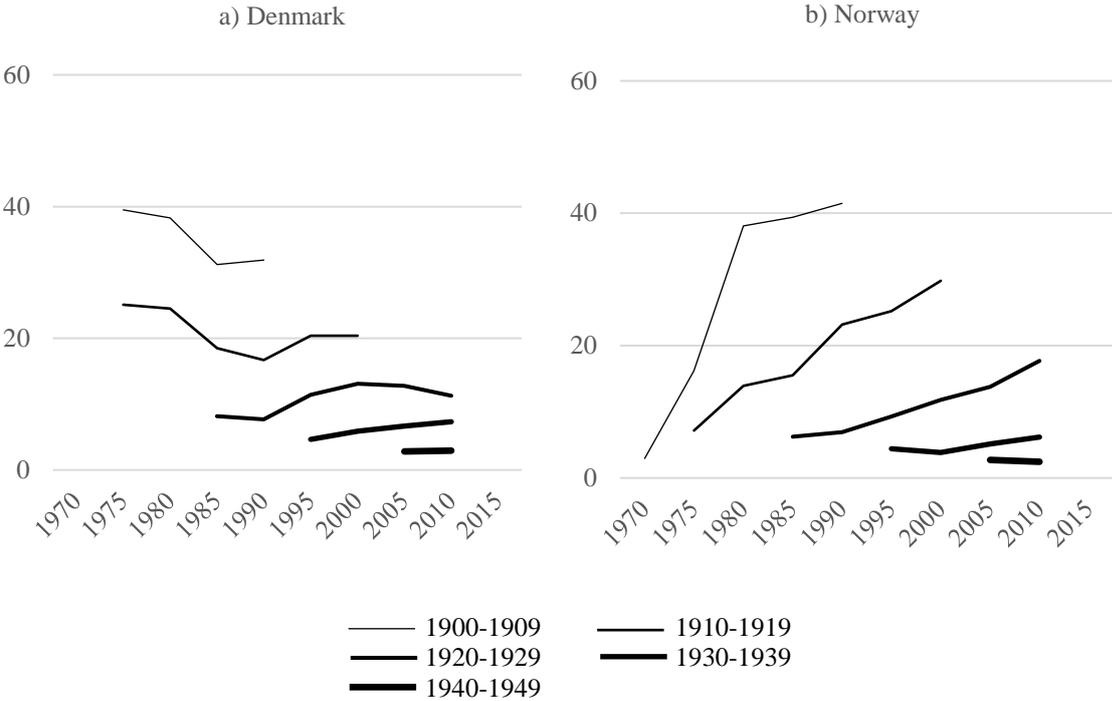
Source: LIS.

Cohort analysis

Is the decline in old-age poverty in most of our countries uniform across all elderly cohorts, or does the overall downward trend reflect that younger and more economically strong cohorts are entering old age? There are at least two fundamentally different mechanisms through which cohort replacement can contribute to an overall reduction in old age poverty. More recent cohorts either can enter old age at lower risks of poverty, or can see a slower increase of their poverty risk as they grow older. For our analyses of elderly cohorts (*Figures 8a-b*), we used all available LIS datasets for our 19 OECD countries. It should be noted that we in this analysis use synthetic cohorts, defined by birth year and analysed across successive waves of independent cross-sections of data (Deaton 1985). Thus, we do not follow the same individuals

as they grow older. Analyses of synthetic cohorts are sensitive to compositional changes and results should therefore be interpreted cautiously. In our analysis, compositional changes may, for example, occur due to differences in life expectancy across elderly cohorts.

Figure 8a-b. Relative income poverty (50% poverty threshold) in different synthetic old age (65+ years) cohorts by year in selected OECD countries.



Source: LIS.

The first mechanism of lower poverty risks of new cohorts entering old age is illustrated in *Figure 8a*, showing how relative income poverty in different synthetic cohorts of elderly people developed in Denmark since 1970. Similar patterns can be observed in Canada, France, Greece, Israel, and Luxembourg. *Figure 8b* uses Norway as an example of the latter mechanism of poverty risks increasing more slowly among recent elderly cohorts as they grow older. Countries with similar patterns as Norway are Australia, Finland, Germany, the United Kingdom, and the United States.

4. Conclusion

We surveyed income developments in old age and among the working age population across high-income economies with a particular focus on changes in old age poverty. Overall, relative income poverty in old age fell in the three decades between 1985 and 2015 in the majority of

the 19 OECD countries studied here. Notable exceptions were the slight increases in old age poverty in Australia, Switzerland and the United Kingdom. The elderly used to be at greater risk of poverty than those in working age. However, in the last three decades, poverty rates among the elderly and in the working age population have converged. At lower poverty thresholds, old age poverty today is either on par or slightly lower than for the working age population. These patterns were largely confirmed using an anchored measure of poverty as well, suggesting that the purchasing capacity of elderly incomes grew faster than those of the working age population.

In times of high and rising inequality, our observation that poverty in old age is going down in most of our countries is reassuring. It seems to suggest that developments in recent decades to ensure the financial sustainability of pension systems not necessarily have created additional problems of assuring adequate minimum incomes in old age – at least not in the short run. However, three important clarifications should be made, that require further attention in academia as well as in policymaking.

First, our findings clearly show that elderly from older cohorts are at greater risk of poverty than elderly from younger cohorts in a large number of countries. The results for the older cohorts are most likely due to the belated expansion of pension benefits for the oldest elderly, including the provision of adequate minimum pension benefits for those groups who cannot realize the full potential of the pensions reforms introduced in the immediate post-war decades. Younger cohorts not only entered old age at lower poverty risks, in some countries their incomes deteriorated less substantially as they reached their ‘third age’ and grew older after retirement. In countries where old age poverty is strongly associated with cohort replacement, special attention to those at a very advanced age (‘fourth age’ at 75+) is warranted – particularly as this group is substantially less likely to have the capability to supplement their pension with income from work. With the increase in pensionable age and improvements in longevity, more people work beyond age 65. However, it should be noted that for some of the elderly, employment is enforced by lack of adequate pensions (Scherger 2015).

Second, the same set of risk factors that is strongly associated with poverty in working age, is also present among the elderly. Market inequalities are often reproduced in old age due to the employment-pension link in contributory systems, as well as in individual savings schemes. Vulnerable groups with a more limited contribution record are those with low education,

migrants, and women. It is well established in research that women's work histories are shorter and more precarious than men's (Pettit and Hook, 2009; Andringa et al., 2015). Women also tend to earn less (Charles and Grusky, 2005; Cukrowska-Torzewska, 2017; Gornick and Meyers, 2003), and contribute less to household income than men (Nieuwenhuis et al., 2017). These differences in working careers and earnings between men and women seem to be reproduced in many pension systems, thus increasing the poverty risks of elderly women. In the short term, the only effective remedy to reduce poverty risks of elderly women may be to strengthen the minimum pension benefits. In relation, as women live longer than men, adequate indexation of pensions is particularly important to the income position of women in old age (Falkingham & Rake, 2001). Other strategies include compensation for care giving through pension credits (currently mainly used in public schemes). Individual pension benefits of married couples are sometimes recalculated at time of divorce or death of partner, thus adjusting for the fact that elderly women may have lower benefits due to family-related inactivity.

Third, many of the elderly cohorts analysed in this chapter were of working age in the 1960s and 1970s. The labour market was very different in those days. Full employment was a reality in many countries, and for those in work, full-time employment was often a realistic option. How current trends of more precarious work (Kalleberg, 2018) and in-work poverty (Lohmann and Marx, 2018) resonate in future contribution histories remains an issue of concern in many pension reforms (Hinrichs & Jessoula 2012). Further research is needed in predicting future poverty trends among the elderly using a typical agent or micro-simulation approach (Meyer et al., 2007). Enforcing stronger links between contribution history and pension rights, as introduced in several OECD countries (Ebbinghaus, 2011), pose a real threat to the social sustainability of old age incomes. Without effective minimum income pension benefits in place that are able to sustain or raise elderly incomes above commonly agreed poverty thresholds, we cannot simply expect the recent decline in old age poverty to continue to hold for future generations.

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