

# Managing Longevity Risk in Low and Moderate Income Countries: Longevity Insurance Benefits as a Policy Solution

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**Abstract** Longevity risk is a problem for older people worldwide. The majority of people worldwide age 75 and older do not receive social security old-age benefits. This problem mainly occurs in lower-income countries. This paper argues for old-age benefits coverage for persons age 75 and older through longevity insurance benefit programmes. Because of the advanced age at which these programmes start paying benefits, such a goal would be relatively inexpensive for most countries. This would be an intermediate goal toward full coverage of all older persons. This paper discusses the Care Allowance in Poland for persons age 75 and older and the Age 80 Allowance in Ireland as models that can be adapted to lower-income and moderate-income countries with low coverage rates for extending pension coverage to people starting at an advanced age.

**Keywords:** *managing longevity risk, longevity insurance benefits, extending pension coverage, social pensions*

**Cite This Article:** John A. Turner, Gerard Hughes, Agnieszka Chłoń-Domińcak, and David M. Rajnes, "Managing Longevity Risk in Low and Moderate Income Countries: Longevity Insurance Benefits as a Policy Solution." *Journal of Finance and Economics*, vol. 6, no. 4 (2018): 154-161. doi: 10.12691/jfe-6-4-5.

## 1. Introduction

Only 26 per cent of the world's working population is protected against longevity risk by being effectively covered by social security old-age benefits programmes [1]. In Africa as of 2010, about a third of workers were legally covered by social security old-age benefit programmes, but effective coverage was substantially lower. "Effective" coverage refers to the number of people who are actively contributing to a social security programme. In sub-Saharan Africa, effective coverage by contributory programmes is about 5 per cent, while in North Africa it is about 20 per cent [1]. Lack of effective coverage is arguably the most serious problem facing social security programs worldwide [2,3].

This paper analyzes longevity insurance benefit programmes as a way of extending pension coverage to vulnerable population of people at advanced ages in low- and middle-income countries. Longevity insurance benefits are benefits that start at an advanced age where roughly half or the cohort entering the workforce has died. Because of the advanced age at which these benefits start payment, they are an efficient way of dealing with longevity risk. They provide insurance against outliving one's resources, but only at an age at which this risk is relatively large.

This paper argues for the goal of universal pension coverage around the world at age 75, and presents the case

for using longevity insurance benefits provided through social security to meet this goal. Taking the approach that ultimate goals should be reached through a series of steps, this goal would be a step toward the ultimate goal of all older people being covered by a social security pension. Because of the advanced age, for most countries this goal would be relatively inexpensive to meet. It would also be a well-targeted programme in that it would provide benefits to a vulnerable group.

While Ireland and Poland both have high social security coverage rates, this paper discusses the Age 80 Allowance programme in Ireland and the Care Allowance in Poland as possible models for countries with low social security coverage rates. While both those programmes provide relatively low benefits as supplements to other benefits, we argue that those programmes could be adapted at a more generous level so that they would be the only benefits for individuals at advanced ages not qualifying for other benefits. In the context of developing countries and countries with low social security coverage rates, such programmes can help reduce extreme poverty and hunger.

The methodology of the paper is to propose an adaption of the longevity insurance benefits programmes in Poland and Ireland as a way of extending pension coverage at advanced ages in countries with low coverage rates. The paper combines a literature survey with an analysis of the historical record concerning the adoption of social security programmes in currently high-income countries, arguing that the proposal is consistent with the approach used to

initiate social security benefits programmes in currently high-income countries.

The paper is organized as follows. It first surveys the previous literature. It then discusses the historical record as to the age at which social security benefits were first provided in different countries. It notes that in many currently high-income countries, the age at which benefits were first provided was age 70, and thus the benefits were longevity insurance benefits, given the life expectancy in those countries at the time the programmes were started. By contrast, many developing countries have established social security benefits programmes with relatively low retirement ages, but also with low coverage rates. The paper then discusses the goal of universal pension coverage at age 75 in low-income countries and at age 80 in higher-income countries with longer life expectancies. It discusses the programmes in Ireland and Poland, as well as discussing programmes in a few other countries in less detail. In implementing a longevity insurance benefit, each country would need to decide the appropriate age for its country.

## 2. Literature Review

The central concept of this paper is longevity insurance benefits. These benefits begin payment at an advanced age at which a substantial proportion of the birth cohort has died. These are targeted benefits paid to a population that is economically vulnerable because of its advanced aged.

A second, intersecting concept related to the programmes discussed in this paper is social pensions. Social pensions are non-contributory cash pensions given to older persons [4]. Non-contributory means that the worker does not contribute to them, but qualifies based on age, and possibly economic status (means tested).

**Extending Pension Coverage to Deal with Longevity Risk.** Given limited resources for social protection, countries need to consider what are their top priorities. The International Labour Office in its book *Social Security Pensions: Development and Reform* [2] argues that the key social security issue is extending pension coverage to more people. Regrettably, not much progress has been made since that book was published, though China has made substantial improvements [5]. At the same time, the World Bank has recognized the importance of extending pension coverage [6,7]. While it was initially argued that individual account reforms would extend pension coverage, Rofman [6] notes that the individual account reforms of the 1990s in Latin America had little effect on extending coverage.

The issue of extending pension coverage in developing countries has received attention in a number of studies. For example, Overbye [8] discusses alternative strategies for extending coverage in low-income countries, comparing social insurance to social assistance programmes. He argues that demogrants given to people in vulnerable social groups are easy to administer and difficult to misuse. van Ginneken [9] documents the growing use of tax-financed, as opposed to contributory (worker contributes), social security programmes as a means of extending coverage, and discusses some of the issues in comparing the two types of programs.

Recent studies have examined various options for extending pension coverage. For example, Kwena and Turner [10] examine the Mbao pension plan in Kenya as possible model. That plan is based on mobile money and cell phone technology. Chen and Turner [5] discuss the extension of pension coverage to the rural sector in China. Both these innovations are voluntary programmes that have been highly successful. Chen and Turner [11] discuss social insurance benefits in China starting at age 80 as an added benefit in a system with widespread coverage.

**Longevity Insurance Benefits.** This article builds on a previous literature analyzing various aspects of longevity insurance benefits in the private sector and for social security. Milevsky [12] initiated interest in this type of annuity. Webb et al. [13] and Iwry and Turner [14] also present early analyses. Other contributors to the field include Turner [15,16], Abraham and Harris [17], and Blake and Turner [18]. Chen, Hughes and Turner [19] discuss longevity insurance benefits programmes in China and Ireland.

**Social Pensions.** The organization Global Action on Aging [4] advocates for social pensions in developing countries. It notes that the cost of widespread social pensions in South Africa is 1.4 percent of GDP, and in Namibia it is 2.0 percent of GDP. The cost of the type of social pension advocated for in this paper would be substantially less because of the advanced age at which it starts. The International Labour Organisation (ILO) [20] finds that social pensions have been successful in eradicating extreme poverty among older persons. Help Age International [21] also advocates for the spread of social pensions. The World Bank [22] cautions that administrative management systems need to be developed to prevent corruption of these programs.

## 3. Longevity Insurance Benefits in the Early Development of Social Security

The historical development of retirement ages in social security old-age benefits programmes differs considerably between the countries that first started social security programs and are now high-income countries, compared to countries that currently are low-income countries. This paper argues that lessons for low-income countries can be gained by examining the historical development of social security in the early adopting countries.

As noted in Chen and Turner [11], in the early development of social security programmes, a number of countries established benefit eligibility ages as high as age 70 at a time when relatively few workers survived to those ages. The following section provides a few examples (Table 1).

**Germany.** The original concept of social security under Chancellor Bismarck in Germany was a longevity insurance benefit. The benefit was available at age 70 starting in 1889. While life tables are not available for that year, clearly less than half the population entering the workforce survived to that age.

**Canada.** Canada first enacted a public pension, which was means tested, in 1927, with a benefit eligibility age of 70. Life expectancy at birth in 1920 for males was 59 years (Statistics Canada 2012). The means test was

eliminated in 1951, but the eligibility age remained age 70 until 1965, when it was reduced to 65 [23].

**Ireland and the United Kingdom.** When the means-tested old age pension was introduced in Ireland and Britain in 1908, the retirement age was 70. In 1910-1912, life expectancy at birth for a male was age 51 [24].

When a social insurance based Old Age (Contributory) Pension was introduced in Ireland in 1961, the retirement age was set at 70, and it remained at that age until the 1970s. Thus, the social insurance old-age benefits programs in Ireland and the United Kingdom initially were longevity insurance programmes, and their transformation to broad-based benefits programmes occurred in part due to the lowering of the eligibility age for benefit receipt.

**Norway.** In 1936, the benefit eligibility age was 70 in Norway [25].

**Brazil.** The preceding countries are examples of high-income countries that first provided social security old-age benefits at advanced ages. Brazil exemplifies a country that first provided a social assistance pension at a relatively high age. In 1974, Brazil adopted a programme of social assistance benefits to persons age 70 and older [26]. The age has been reduced over time, and currently is age 65.

**Table 1. Social security eligibility age at the start of social security programs, selected countries**

Country	Year programme established	Eligibility age
Germany	1889	70
Great Britain	1908	70
Ireland	1908	70
Canada	1927	70
Norway	1936	70
Sweden	1936	70

Sources: See Chen and Turner [11].

By contrast to these relatively high ages at the start of their systems, a number of countries in Africa in 1997, relatively early in the development of many of their social security systems, had benefit eligibility ages, at least under some qualifying conditions, of age 50 or younger (Table 2). These countries included Algeria, Benin, Burkina Faso, Burundi, Côte d'Ivoire, Egypt, Gabon, Gambia, Guinea, Kenya, Mali, Rwanda and Togo [2]. This paper argues that these and other countries in Africa and elsewhere in the developing world should establish a goal of universal social security coverage at age 75.

**Table 2. Social Security eligibility age, selected countries in Africa, 1997 and 2015**

Country	Eligibility age in 1997 (under certain conditions)	Current eligibility age (2015)
Algeria	50 (men), 45 (women)	60
Côte d'Ivoire	50	55
Egypt	40	40
Guinea	50	50
Kenya	50	50
Mali	50	53

Source: Gillion et al. [2], Social Security Administration (U.S.) [24].

## 4. Adapting Programmes in Ireland and Poland for Extending Coverage in Other Countries

This section considers longevity insurance programmes in Ireland and Poland as possible models for providing insurance against longevity risk and extending pension coverage.

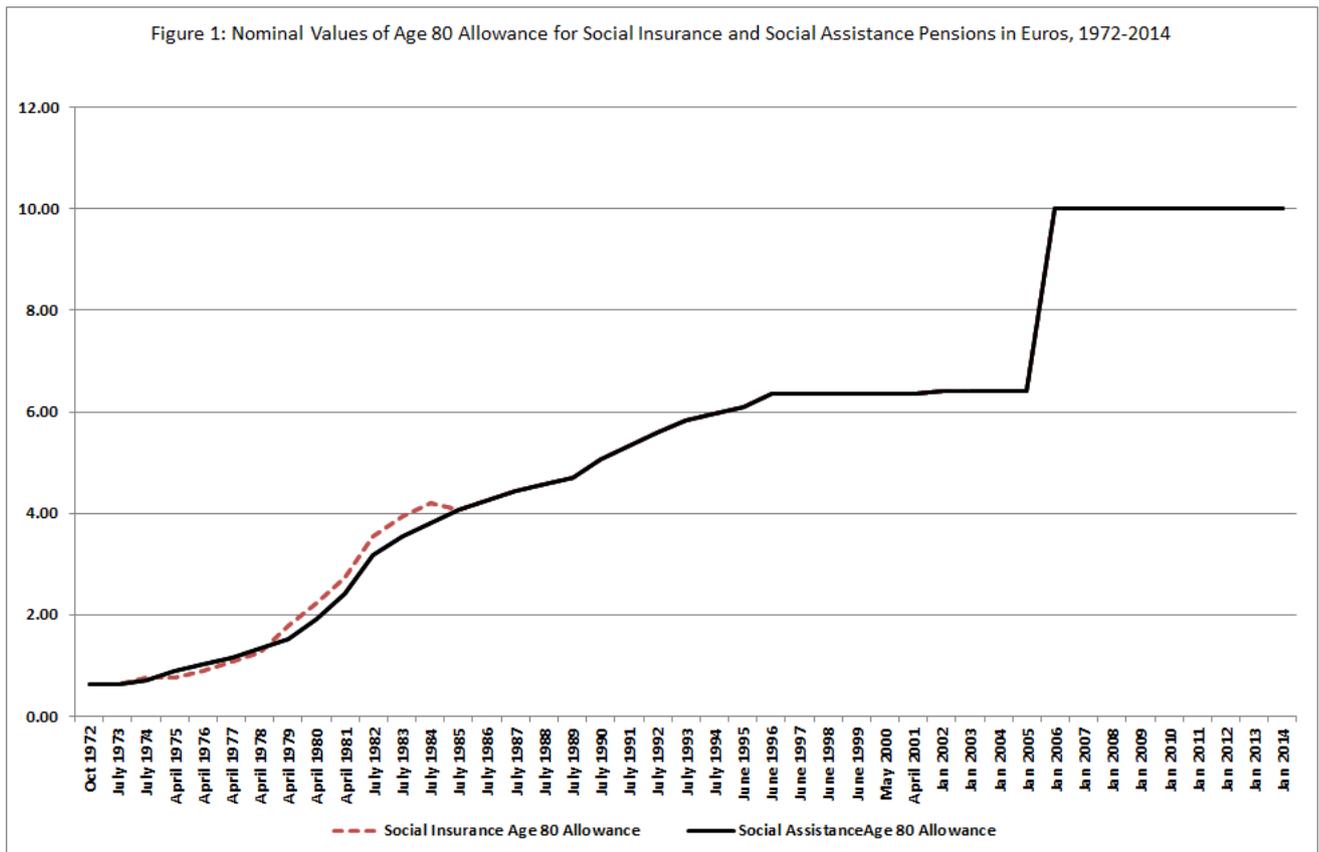
**The Age 80 Allowance in Ireland.** Ireland has had a non-contributory social assistance pension since 1909 and a contributory social security pension since 1961. Both pensions were originally available at age 70. The contributory social security pension provides flat rate (not earnings-related) pension benefits. The maximum flat-rate value of the social security pension depends on having an annual average of 48 or more weekly contributions to the social insurance fund during one's working life. A sliding scale of average contributions is used to pay smaller pensions to those with average contributions less than 48 per year. The social assistance pension depends on income and assets in old age, and the social security pension depends on previous participation in the labor force.

In the 1972 national budget, both the social assistance and social security pensions were increased for older pensioners by introducing an age allowance for pensioners aged 80 and over. All persons age 80 and older receiving either of those pensions receive the age 80 allowance. Thus, the age 80 allowance is a social pension that is not means tested, but it is also not universal. It excludes some higher-income persons who do not qualify for social assistance because of their income and do not qualify for a social security pension because of having an insufficient work history. The particular feature of it that we are focusing on as a model for other countries is that it starts at age 80. The administration of a social pension that is not means tested is simpler and less costly than for a means-tested pension [4].

In his budget speech introducing the pension, the Minister for Finance (Ireland, 1972), Mr. Colley, said that the reason for introducing the allowance was that "I am especially conscious of the fact that very old persons are often at a disadvantage because of their inability to do things for themselves and shop around for the best value. In recognition of this, all non-contributory [and contributory] old age and blind pensioners aged 80 and over will receive a further increase of 50p per week."

While the relationship between the age 80 allowance for the social security and social assistance pensions varied in the early years, since 1985 the allowance has been the same for both pensions (Figure 1). The nominal value of the allowance increased considerably in 2006, when it was increased to €10 per week, but it has not increased since then, thus declining in real value for the past decade. The cost of the benefit as a percent of GDP was 0.07 percent in 2011.

When Ireland introduced the age 80 allowance in 1972, that benefit was nearly 10 percent of the maximum social assistance pension and about 8 percent of the social security pension, but its relative value has fallen over time. Since 2006, the allowance has stabilized at around 4.5 percent for both pensions.



**Figure 1.** Nominal Values of Age 80 Allowance for Social Insurance and Social Assistance Pensions in Euros, 1972-2014 (Source: Department of Social Protection Ireland, Rates of Payment, 1972-2014)

Over the period since 1972, the social security pension has increased by over 30 times, well in excess of the increase in earnings, which increased by nearly 22 times. Although the age 80 allowance was paid as part of the social security and social assistance pensions, it did not grow at the same rate as these pensions, as it increased by only about half of the rate (16 times) they increased. This result suggests that policymakers treat the age allowance as a separate component of the income package provided for the very old population. However, the age allowance and the social security and social assistance pensions have all kept ahead of price inflation, which has increased by about 13 times since 1972. The improvements in the social security and social assistance pensions over the last 40 years or so have ensured that, starting from a low level of pension relative to earnings, pensioners' living standards have risen faster than those of employees, and although the value of the age allowance declined relative to the pensions, it made a modest contribution to helping the very old population cope with an increase in the cost of living.

The large increase in life expectancy since Irish independence means that far more people are now living into their 80s and qualifying for the age 80 allowance. Thus, the lifetime expected value of its benefits has increased faster than has its annual value. The first life table compiled in independent Ireland for the period 1925-27 indicated that life expectancy at birth was virtually the same for men (57 years) and women (58 years), while at age 65 both men and women were expected to live for another 13 years on average (Figure 2).

In the mid-1920s, therefore, relatively few men and women lived into their 80s. This hardly changed until the 1960s, when there was an increase of two years in life expectancy at age 65 for women, to 15 years, and a slight decline for men, to 12 years. However, significant gains at birth for both men and women occurred by the mid-1960s, with life expectancy increasing to 68 years for men and to 72 years for women. In the following 40 years up to 2005-07, life expectancy at birth and at age 65 increased significantly for both men and women. The latest life table for Ireland shows that life expectancy at birth is 77 years for men and 82 years for women, and at age 65 it is 82 years for men and 85 years for women. The latest projections suggest that life expectancy at birth will increase to nearly 89 years for women and to 85 years for men by 2046. Most people retiring at age 65 can, therefore, expect in the future to live into their mid-to-late 80s.

Figure 3 shows at-risk-of-poverty by age and gender in Ireland. Of particular interest for this paper is the comparison between age 75 and older versus younger ages. The at-risk-of-poverty rate for the age group 75 and older closely tracks the poverty rate for the population age 65 and older. The increase in the age 80 allowance in 2006 contributed to closing the at-risk-of-poverty rate between those aged 75 years and over and those aged 65 years and over. Since 2009 the rates for both women and men aged 75 plus have coincided with the rates for those aged 65 plus. By comparison, in the United States, for example, poverty rates increase with age at older ages in part due to some people outliving their savings.

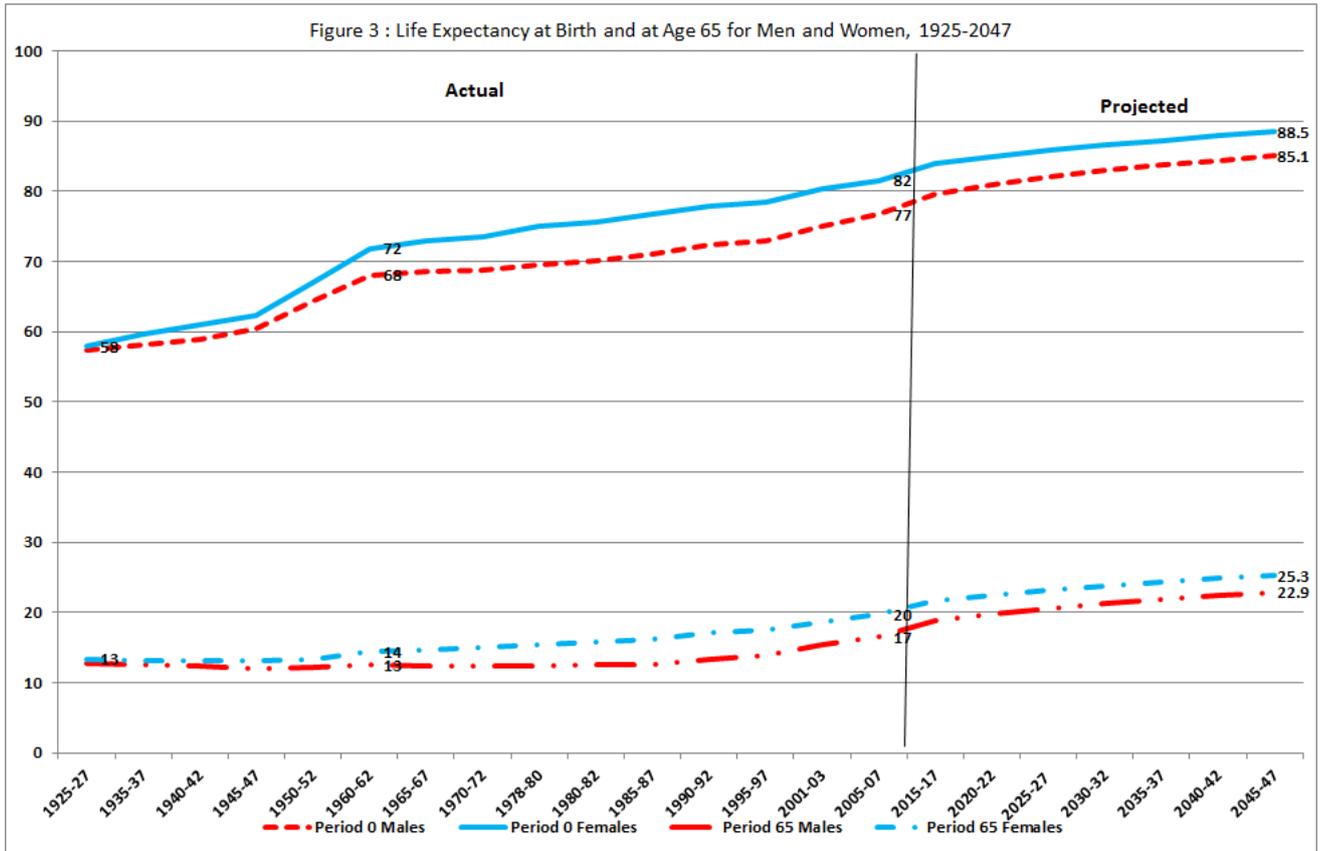


Figure 2. Life Expectancy at Birth and at Age 65 for Men and Women, 1925-2047 (Source: Central Statistics Office Ireland, Irish Life Tables No. 15 2005-2007.)

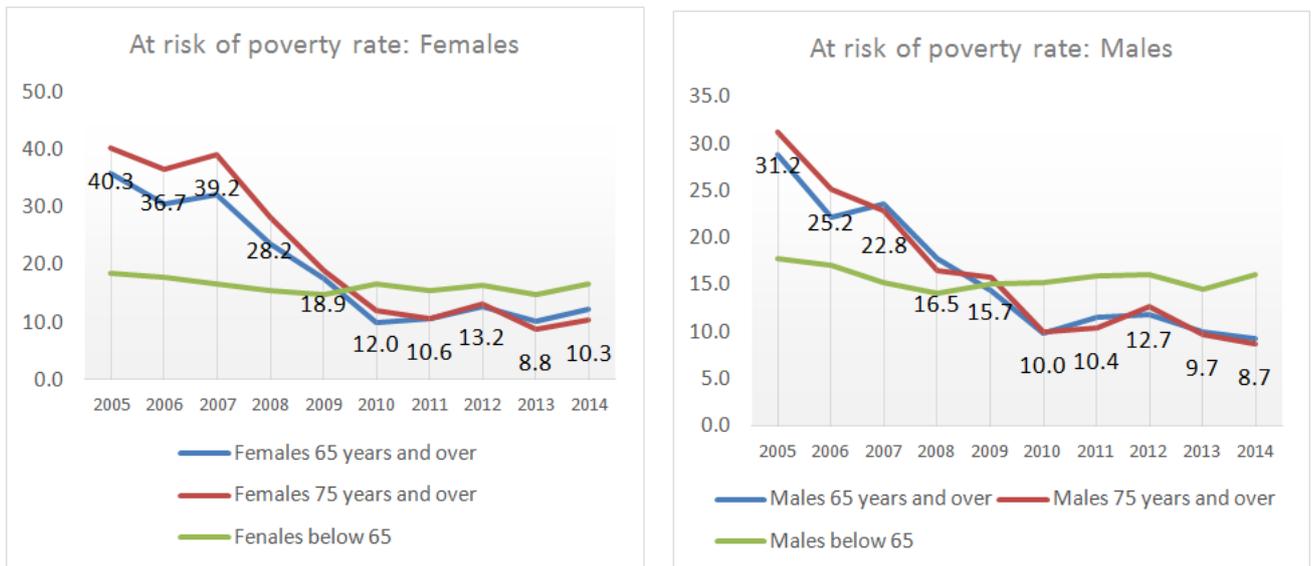


Figure 3. At-risk-of-poverty rate by age group and gender in Ireland, 2005-2014 (Note: cut-off point: 60% of median equivalized income after social transfers, Source: Eurostat EU-SILC data, extracted on May 24, 2016)

**Poland.** Poland has high social security pension coverage, compared to other transition economies in Central and Eastern Europe. This result is achieved by a mix of contributory and non-contributory plans [27]. The general social security pension system covers salaried workers and self-employed workers. Farmers are covered by a separate social security scheme, with a small contributory component (with contributions equivalent to 10 per cent of minimum monthly pension per month).

Contributions cover less than 10 per cent of the expenditure on farmers' pensions, and the rest is covered from taxes, which means that it is a quasi social pension for this part of the Polish population. Old-age pensions have been paid from ages 61 for women and 66 for men, but since October 2017 these ages were decreased to 60 for women and 65 for men.

There is also a non-contributory part of the income of the elderly population in Poland. All people age 75 and

over receive an additional care allowance or benefit, financed from the state budget. If they receive contributory pensions (from the general or farmers' scheme), the care benefit is paid on the top of those benefits. If they are not eligible for a pension, they receive a care allowance paid from the state budget by local community social services, based on the Act on family benefits. The level of the monthly care benefit (paid on the top of a pension) from March 2016 is 208.57 PLN (an equivalent of 50 EUR or 24 per cent of the minimum pension), while the care allowance is set at the amount of 153.00 PLN (about 37 EUR).

Access to universal benefits for people from age 75 is one of the mechanisms that reduces the risk of poverty at

older ages. It provides an important addition to the income of people in oldest age group. However, given the rising needs of care services, it is still seen as insufficient [28]. The impact of this policy is seen by examining the level of transfers received from social insurance by age, which is illustrated in Figure 4.

The universal care benefit contributes to reduction of the poverty rate among population in age group 75 years and over. According to Eurostat data, the share of poor people in this group is the lowest among all age groups, which is shown in Figure 5. This means that even a relatively small addition to the income serves an important goal of reducing poverty at advanced ages.

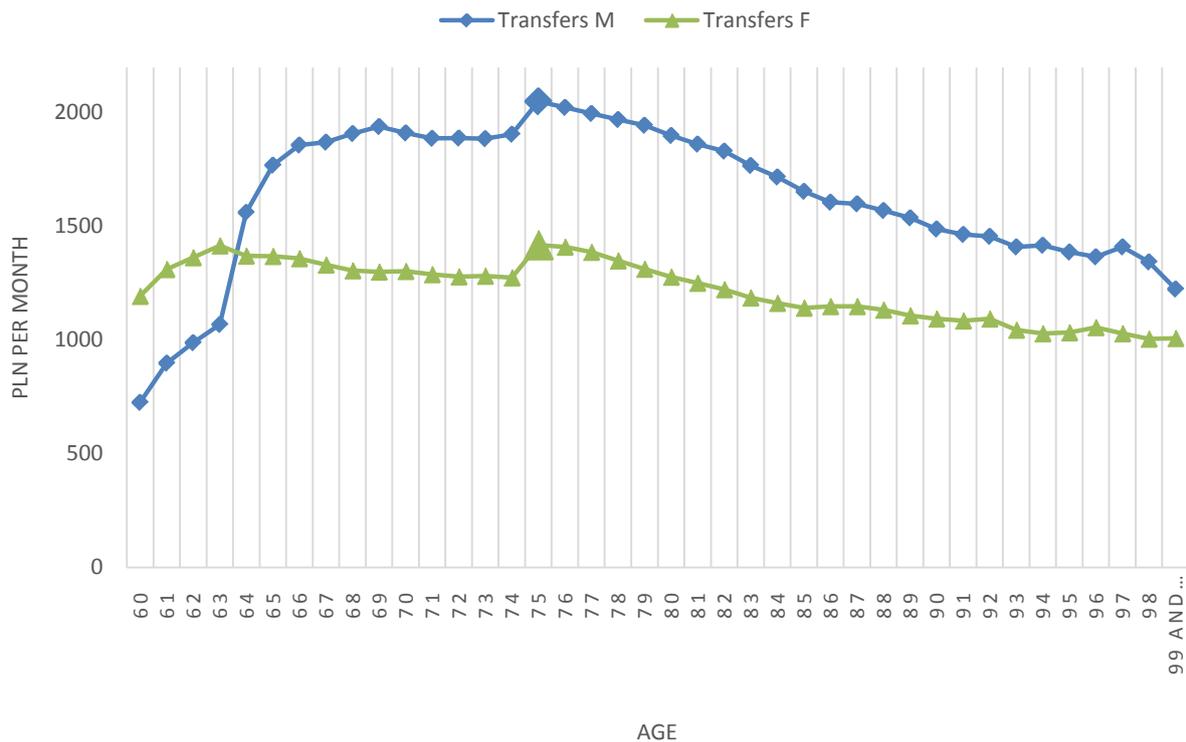


Figure 4. Monthly payments of pensions and allowances from Social Insurance Institution in Poland by cohort for males (M) and females (F) in December 2012 (Source: Authors calculation based on data from the Social Insurance Institution)

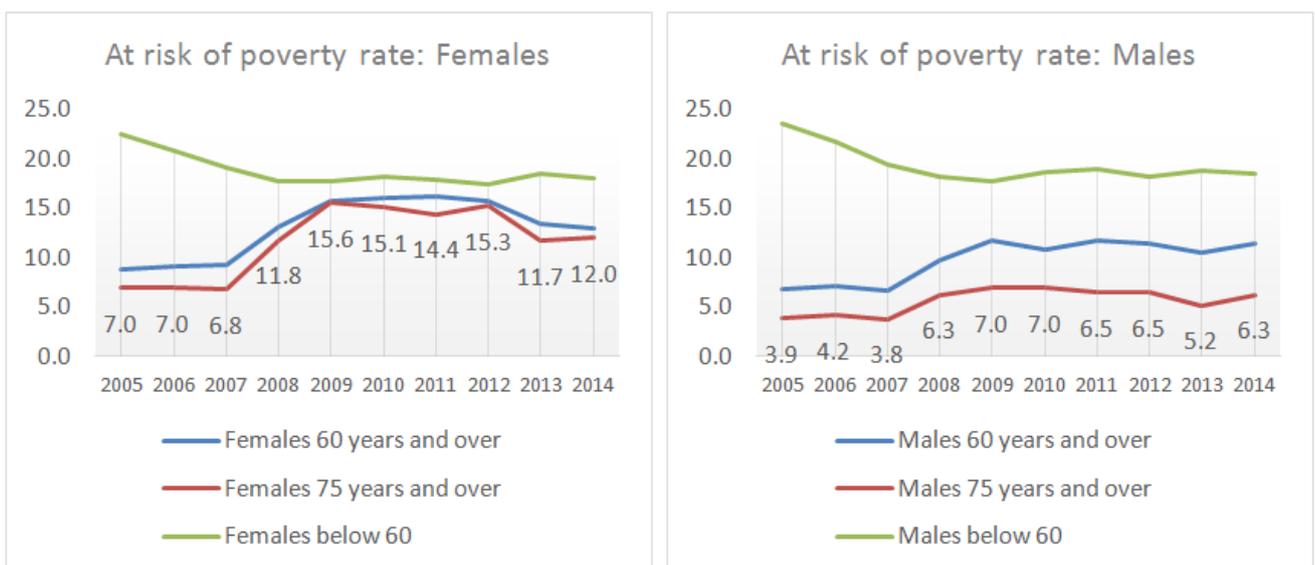


Figure 5. At-risk-of-poverty rate by age group and gender in Poland, 2005-2014 (Note: cut-off point: 60% of median equivalized income after social transfers, Source: Eurostat EU-SILC data, extracted on May 24, 2016)

## 5. Extending Social Security Pension Coverage at Older Ages

Adapting the model of the age 75+ allowances in Poland and the Age 80 Allowance in Ireland, countries with low coverage rates could take a step toward expanding pension coverage by providing universal, noncontributory pension coverage at older ages, such as at age 75 in low-income countries and age 80 in higher-income countries. This benefit would be relatively inexpensive because of the limited population it covers, and it would be well targeted because of the advanced age of its recipients. It would thus be an efficient use of the limited resources available for social protection.

Several countries have already adopted programmes based on the concept of providing benefits at relatively advanced ages, given life expectancy in those countries. Kenya for example, has a programme that provides noncontributory benefits for people aged 65 who are not receiving other cash transfers. The age of 65 is 10 years older than the qualifying age (55) for benefits in the National Social Security Fund. The programme is called the Older Persons Cash Transfer Programme. It began in 2006 as a small pilot programme, but has been expanded since then, though its coverage is not universal. In 2013, there were 36,000 beneficiaries receiving about US\$40 a month [29]. In Uganda, a pilot programme funded by the World Bank is providing noncontributory benefits to persons aged 70 and older in some provinces (Turner, 2014).

In 2016, Zanzibar, an autonomous region of Tanzania, introduced a universal pension starting payment at age 70 [30]. With this programme, all citizens aged 70 and older receive a monthly noncontributory pension of 20,000 shillings (US\$9.16) that is financed by the government through general revenues. The pension is paid regardless of an individual's income or assets. The government hopes that the new pension will reduce poverty and inequality in the country by providing vulnerable persons with a stable source of income in retirement. According to a government survey conducted in 2004/2005, 49 percent of Zanzibaris live below the poverty line of 20,185 shillings (US\$9.24) per month. In addition, the majority of older persons have never been employed in the formal labor market and are therefore not covered under the public pay-as-you-go (PAYG) pension programme for employed and self-employed persons in the formal sector.

India has a means-tested programme, the Indira Gandhi National Old-Age Pension Scheme (IGNOAPS), providing benefits to people aged 60 and older [31]. In addition, that programme provides a supplemental benefit to persons aged 80 and older. The monthly benefit provided to IGNOAPS beneficiaries aged 80 or older was raised in 2011 from 200 rupees to 500 rupees (US\$11.10). According to the Indian government, an estimated 2.6 million poor persons aged 80 or older receive the monthly benefit.

## 6. Conclusions

The Care benefits and allowances in Poland paid to people age 75+ and the Age 80 Allowance in Ireland

provide a possible model that can be adapted for dealing with longevity risk and extending pension coverage in low- and moderate-income countries. Because of the old age at which benefits start, longevity insurance benefits are a relatively inexpensive programme, costing 0.07 percent of GDP in Ireland in 2011, making it feasible for many low-income countries. The cost of a stand-alone programme would be higher than the programme in Ireland, but would still be relatively low. Data for Poland show that the programme decreases poverty rates at older ages.

Rather than trying at first to extend pension coverage to all older persons, governments could have the intermediate goal of extending it to all persons age 75 and older. The benefit would improve the economic status of older persons and thus also improve their social status. It would relieve younger relatives from the financial burden of supporting older relatives. It would be more feasible in terms of economic costs than the programmes that provide benefits at relatively young ages and that are often received primarily by relatively privileged groups. It would be well targeted in terms of spending limited resources on the people who need it the most. It would help reduce extreme poverty and hunger at advanced ages.

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