# Pension reforms and old age inequalities in Europe: From old to new social risks?

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*Abstract*

Pension reforms over the last two decades cut back public pension benefits, gradually extended the official retirement age, and fostered privately funded pensions. This marketization and privatization of income responsibility in old age has already important social consequence today and in the future. Moreover, the trend toward more flexible, if not precarious, employment has a negative impact on pension coverage and thus will affect old age income. While the sustainability of pension reforms in the face of demographic ageing has been widely discussed, the adequacy of retirement income has often been neglected from current debate, partly because poverty in old age seemed no pressing concern in advanced welfare states until recently. However, already in the past, poverty and income inequality varies across pension systems in Europe.

Cross-national comparison shows considerable variation across Europe when we analyse poverty rates at different levels. Using past and current EU-SILC and LIS data, a comparative analysis of poverty rates in old age reveals that Beveridge basic security is not always capable of effectively reducing poverty despite the explicit purpose to do so, while some contributory Bismarckian systems are better suited to reduce poverty, despite focusing on status maintenance. The lowest poverty rates are found in the relatively generous Dutch and Danish basic pensions, while Finland and Sweden have moved away from basic pension to a new multipillar system that is doing still relatively well. In contrast, Ireland, the United Kingdom and Switzerland with basic security and Belgium, Greece, Italy and Spain as well as Slovenia with meagre pensions have the highest poverty rates, coming close to US levels. Considering indicators of inequality, the elderly are more at risk than the working population with the exception of few Bismarck systems (France, Germany, and some CEE countries) as well as the Dutch multipillar system.

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## Introduction

Over the last three decades, pension reforms aiming at financial sustainability in ageing societies cut back public pension benefits, gradually extended the official retirement age, and fostered privately funded pensions. This marketization and privatization of income responsibility in old age has already important social consequence for current pensioners, but it will have long lasting impact in the future. Moreover, the trend towards more flexible, if not precarious, employment has a negative impact on pension coverage and thus will affect old age income. While the financial sustainability of pension reforms in the face of demographic ageing has been widely discussed, the adequacy of retirement income has often been neglected from current debate, partly because poverty in old age seemed no pressing concern in advanced welfare states until recently. However, already in the past, poverty and income inequality varies across welfare states in Europe, indicating that the type of pension systems matters for old age income situation. The paper thus asks the pertinent question: What can we learn from past and current experience in respect to poverty and inequality across Europe for our understanding on the impact of specific pension systems and their reforms on retirement income situation? It will use the differences between dominantly Bismarckian public pay-as-you go old age social insurance and Beveridgean multipillar pension systems with basic floor and (funded) supplementary pensions as its main institutional variation, albeit differentiating further aspects of pension systems and their reforms over time.

Cross-national comparison shows indeed considerable variation across Europe when we analyse income patterns for old age. Using long-term key indicators from the Luxembourg Income Study (LIS) and more recent EU-indicators from the European Union Survey of Income and Living Conditions (EU-SILC), this paper provides a comparative analysis of poverty rates and relates them to benefit indicators and institutional typologies of pension systems. The analysis reveals that Beveridge basic security is not always capable of effectively reducing poverty despite the explicit purpose to do so, while some contributory Bismarckian systems are better suited to reduce poverty, despite focusing on status maintenance. The lowest poverty rates are found in the relatively generous Dutch and Danish basic pensions, while Finland and Sweden have moved away from basic pension to a new multipillar system that is doing still relatively well. In contrast, Ireland, the United Kingdom and Switzerland with basic security and Belgium, Greece, Italy and Spain as well as Slovenia with meagre social insurance pensions have the highest poverty rates, coming close to US levels. Considering indicators of inequality, the elderly are more at risk than the working population with the exception of few Bismarckian systems (France, Germany, and some CEE countries) as well as the Dutch multipillar system. In the other countries, whether Beveridge multipillar systems (Britain, Ireland, Switzerland), mixed systems of all Nordic countries or pure Bismarckian ones (Belgium, Greece, Italy, and Spain), the contributory public or private pensions lead to significant levels of inequality above the at risk-of-poverty line.

Since pension benefits are the major income source for the majority of retirees, inequalities in old age derive largely from the design of the public-private pension mix. The impact of multipillar systems on poverty and inequality in old age is rather mixed, suggesting that the effect of privatization depends not merely on the public-private mix but also on its design. To reduce severe poverty among those of retirement age, minimum income security, in particular sufficient basic, guaranteed or minimum pensions are needed. This will become even more crucial given the interrupted and non-standard employment careers of the current and future workforce. In addition, the earnings-related pensions are essential for

maintaining living standards for most income groups. The Beveridge multipillar systems rely here alternatively on second-tier state pensions or on private occupational and personal pensions. While state pensions provide some redistributive features, in particular social credits for caring activities, private pensions rarely achieve social redistributive goals, unless tax subsidies, state regulation, or collective agreements intervene.

Access conditions, contribution records, and benefit regulations are all crucial factors affecting the impact of marketised public and private pensions on income inequality in old age. Mandatory supplementary pensions (as in Finland, France or Switzerland) as well as wide-spread collective agreements (as in the Netherlands or Nordic countries) are important to increase coverage among current and future workers, particularly among those with flexible employment. Today's rate of recipients depends on past efforts, thus only the mature multipillar systems have achieved a high and more equal distribution of private pension coverage with respect to gender, household type, and income group. Among current recipients, the public pillar still dominates in many Bismarckian systems, while the multipillar systems already have widespread supplementary pensions. Yet there are significant disparities with respect to gender, household, and income group: women, single pensioners, and low income households rely much more on public pensions than other social groups. In multipillar systems the highest income group profits most from retirement income via funded pensions. As a consequence, private pensions have become a major cause of the reproduction of market income inequalities in old age—at least above the level of public basic security. The Bismarckian systems, designed to maintain status, have reproduced inequalities from their early days, and recent reforms will reduce public benefits, leaving room for market-induced inequalities through voluntary private pensions, unless state or collective regulation succeeds in increasing coverage and socially redistributive elements.

Although public pensions, particularly in multipillar systems, have reduced the risk of poverty and the degree of inequality in old age, the different public-private mixes still entail a relatively similar overall reproduction of social inequalities. Individual pension income follows the pension system design: in the Bismarckian dominantly public systems due to the equivalence principle and in the multipillar systems via supplementary pensions. Moreover, as welfare states have been challenged by the financial and economic crises of the 2000s, individuals relying on funded pensions have also faced volatile financial risks and this individualization of risks may become even more imposing in the future. Only broad-based public policies and collectively negotiated self-regulation can pool risks and redistribute benefits to effectively counteract social inequalities in life expectancy. The comparison of European pension systems shows that the shift toward increasing privatization amplifies the already existing level of social inequality.

The potential increase in old age poverty for social risk groups is due to cutting back of public pension benefits, the insecurities of funded savings, and potential threat of unemployment among older workers. Hence, the public system (including social assistance) remains to be the main protector against old age poverty today but also in the future. Well-developed Beveridge and generous Bismarckian systems have been able to lower old age poverty thus far, but it may increase in the future, increasing political pressures to raise basic pension levels or provide guaranteed minimum income in earnings-related systems. The increased tightening of benefits to the employment relationship and contribution record in both public and private pensions will further lead to inequalities between those that have had advantageous employment and those with precarious jobs and new social risks. The retreat of the state may ironically increase the political pressures for its increased role in securing and regulating old age income provision in

old age. The poverty and inequality among the elderly may thus require further adaptations by policy-makers and non-state actors.

## 1. Comparing welfare regimes and pension systems

Typologies abound since Esping-Andersen's comparative typology of welfare state regimes (Esping-Andersen 1990; Esping-Andersen 1996; Esping-Andersen 1999), delineating liberal, social democratic and conservative principles of social protection. Esping-Andsersen (1990) used in his initial study, besides unemployment and sickness insurances, old age income protection as an empirical basis for his regime classification of countries. In respect to decommodification, i.e. the social rights independent of market mechanisms, universal basic pensions provide to all citizens (or residents) a flat-rate old age pension, this is the hall mark of the social democratic welfare regime, while the two others regime provides more meagre social protection for those elderly in need. His second dimension of the welfare regime typology, stratification, focuses on the reproduction of social inequalities, thus he describes "status maintenance" as a core goal in Conservative/corporatist welfare states as well as the market-induced inequalities due to private pensions as typical of Liberal welfare regimes.

Although Esping-Andersen's welfare regime classification was based partly on pensions as a major social policy area, the overlap between his threefold typology and pension indicators is far from perfect (Ferragina et al. 2015; Ragin 1994). Based on similar data from the Social Citizenship Indicator Program (SCIP), Walter Korpi and Joakim Palme have argued in "The Paradox of Redistribution" (Korpi and Palme 1998; Korpi and Palme 2004) for a more differentiated classification of social protection. Applying this classification to old age security, they distinguish "targeted" pensions with means-testing (Australia), rather low "basic security" (Anglophone countries, but also Switzerland and Denmark), "state corporatist" (most Conservative countries), and "encompassing" protection (Nordics except Denmark, and the Netherlands as late-comer). Path dependence dominates pension systems over the 20th century, in fact, there have been only few changes, most notably the Dutch path departure from corporatist toward an encompassing multipillar system in the 1950s (Ebbinghaus and Gronwald 2011; Korpi 2001).

More specific pension system classifications are based on differences between two ideal-typical historical models: the "Bismarckian" social insurance tradition (since Imperial Germany of the 1880s) and the "Beveridgean" reforms of post-war welfare states (following the recommendation of Lord Beveridge, a British Liberal). The "Bismarck vs. Beveridge" classification (Meyer 2013; Palier and Bonoli 1995) has been used to describe the main difference between pension systems: the Bismarckian social insurances provide for earnings-related benefits (on a pay-as-you-go bases), while a flat-rate basic pension (Liberal and Nordic countries, but also the Netherlands) aims at poverty reduction but leaves some room for filling any income gap by private means. This typology was often further amended in order to capture whether systems come more or less close to the ideal-type. Over the post-war period, some Beveridge systems added mandatory earnings-related schemes ("Beveridge plus"), while some Bismarckian systems where rather lean in their benefits ("Bismarck lite"), thus resulting in a fourfold typology of two ideal-types and their positive or failing enhancements (Ebbinghaus 2011). Pension reforms, however, have also altered these features further. Following the more recent decades of pension reforms, Karl Hinrichs points at the "elephant on the move" (Hinrichs 2000), such as the Swedish reforms of the 1990s that have replaced the basic pensions plus earnings-related second tier into a multipillar pension with some income-

tested guaranteed pension and mandated funded personal pension (Hinrichs and Lynch 2010). In the case of Central and Eastern European (CEE) countries, after their transition to democratic market economies in the early 1990s, most old age retirement income systems were transformed from rather universal social security to social insurance systems with mandatory private funded pillars since the late 1990s (Müller 2008; Orenstein 2008). However, there had recent turnarounds nationalizing funded pillars (as in Hungary) or scaling them down (Adascalitei 2015; Drahokoupil and Domonkos 2012; Guardiancich 2013).

In addition, the "public-private" divide has been noted as consequence of the privatization and marketization of pension systems (Ebbinghaus 2015; Sorsa 2015), though the difference between public and private depends on the definition used and focus of analysis (Ebbinghaus and Whiteside 2012). An influential typology, first advanced by international organization is the distinction between "pillars" according to their responsibility: the *first* public, the *second* private occupational and the *third* private personal pension pillars. These are useful for analysing the governance and regulatory systems of who decides about what (Ebbinghaus 2011; Ebbinghaus and Wiß 2011): while the state finances and regulates the first pillar, it remains more in the backseat in respect to the governance of occupational or personal pensions, though investment regulation and tax subsidies allow regulatory intervention (Leisering 2011). Given the increased flexibilisation of employment, the access to contributory social insurance and private occupational or personal pension becomes a major issue (Hinrichs and Jessoula 2012). In particular, coverage of private pensions matters in respect to inequalities, that is, who has access to such pensions and what happens in case of job changes? State regulation could provide mandatory coverage (as in Switzerland, Sweden and some CEE countries), the ministry could extend collective agreements *erga omnes* negotiated via bargaining between unions and employers (as in the Netherlands), it could provide opt-out of national insurance (Britain in the past) for employers or individuals, it could provide subsidies to low income individuals or families (as for Riester pension in Germany) or require employers to provide a pension plan with automatic enrolment (as in Britain more recently). These governance and regulatory differences matter for the income situation of current pensioners (Neugschwender 2011; Neugschwender 2015), and it will matter even more in the future given uneven coverage (Meyer et al. 2007).

An important second dimension is the income function of pensions are the "tiers": the *first tier* (universal) "redistributive" public schemes versus the *second tier* (mandatory) insurance (OECD 2005: chap. 1; Whitehouse 2007). While the first tier minimum income function is always part of the first, public pillar, the second tier income maintenance can be provided by all three pillars or a combination of them. These two analytical dimensions, the *pillars* (in respect to responsibility and governance) and *tiers* (in respect to income function) have been also applied in academic research (Ebbinghaus 2011; Goodin and Rein 2001; Immergut et al. 2007). For an analysis of the income situation in old age, the income function of tiers maybe more important than a focus on the governance and regulation of pillars. Nevertheless, we will apply here the enhanced Bismarck/Beveridge typology based on the mix of pillars and their particular income tiers in order to classify pension systems in the comparative analysis. Only few studies have used quantitative analysis based on indicators to establish comparative typologies for pension systems (Hofäcker and Unt 2013; Soede and Vrooman 2008). We therefore rely also on international organizations, in particular OECD, the EU Commission, and Eurostat that provide comprehensive databases and comparative reports on pension indicators (Christensen et al. 2009; EU-SPC 2015; EU-SPC(ICG) 2009; OECD 2014; OECD 2015). Note that we focus only on income indicators (poverty and

income inequality) not on more broader concept of social exclusion and insecurity that are very relevant when studying the elderly (Ogg 2005; Zaidi 2011).

The overriding goals of pension systems have been *twofold*: first, guaranteeing a minimum income to avoid poverty in old age and second, maintaining living standards acquired during working lives after retirement. While the former goal had been the priority in Beveridgean pension system, the latter has been traditionally more important in Bismarckian social insurance. Nevertheless, both goals are part and parcel of all pension systems; it is the balance of the two that matters. From a social inequality perspective the public first-tier pension provision are most important in reducing poverty, while many additional aspects of the multitier, multipillar pension architecture influence the reproduction of market inequality or redistribute in order to reduce inequality in old age. We will first discuss the main features of the minimum income function of public retirement income support and then turn to the inequality reducing or generating features of public and private pension pillars. Note that in addition to old age pensions, other social security programmes can be of relevance, particular for those partially or fully withdrawing from work before statutory retirement age. As studies of early retirement show there are multiple "pathways" to early exit from work, including besides early seniority pensions, disability benefits, long-term unemployment assistance, special preretirement schemes, and private occupational pensions or firm-sponsored plans (Ebbinghaus 2006; Kohli et al. 1991). Moreover, old age income may still be complemented by income from work; this might be the main source of income for those without appropriate pension or retirement savings. In addition other income from assets may decide on income situation. Therefore we will only consider the income situation of older people with age 65 or older.

Chart 1: Income function of pension pillars and tiers

| | Pillars (governance/regulation) | | |
|---|---|---|---|
| Tier (function): goal | Public I pillar | Private II pillar | Private III pillar |
| Second tier<br>→ *status maintenance* | Mandatory:<br>- Earnings-related social insurance (contrib.: DB/ points/NDC/DC) | Mandatory/voluntary:<br>- Occupational pension (DB/DC; firm-based or negotiated scheme) | Mandatory/voluntary:<br>- Personal pension (DB/DC)<br>- Savings (life insurance) |
| First tier<br>→ *poverty reduction* | - Minimum (contrib.)<br>- Targeted (means-test)<br>- Basic (residency) | | |

## 2. Public first-tier income protection and poverty reduction

Public pension systems differ in respect to their *minimum* income protection (Goedemé 2013; Goedemé and Marchal 2015): Beverdigean basic pensions provide flat-rate benefits to all residents (based on the years of contributions or residence), whereas Bismarckian pension systems often provide a minimum/social pension (for those with enough contribution years) or rely on targeted benefits, be it income-tested guaranteed benefits (social pensions) or means-tested social assistance. For a minimum pension (or social pension if existent), the number of minimum contributory years is of relevance, this might be particularly problematic for women with very few working years (due to care-related breaks), the long-term unemployed or first-generation migrants moving late to their home country. Table A.1 provides an overview of minimum income systems for old age with recipient rates and maximum benefit (% of average wage).

Among the Beveridgean systems, British (16%), Danish (17%), and Icelandic (7%) basic pensions are particularly low, while the Irish basic pension (37%) and the Dutch pension (30%) are today at a higher level (OECD data from 2010s). In many cases, income- or means-tested targeted benefits are needed to supplement basic pensions and lift them out of severe poverty: 17% of British and Irish pensioners receive such additional benefits (35% of average earnings), most (88%) Danish pensioners (18%), and many Icelandic pensioners (20%). Three Nordic Beveridge countries have changed from basic pensions to (income-tested) guarantees on which 47% of Finns receive such minimum benefits (21% of average earnings), 22% Norwegians (32%) and 42% of Swedes (24%, plus targeted 15% benefit). The Swiss AHV is rather similar to a basic security system with rather limited contribution-related benefits (minimum: 16%) and a targeted supplemented for every tenth pensioners (12%). Note that in no country are the basic, targeted or minimum benefits enough to move pensioners above the poverty line, that is, above half of the net disposable income of the median earner. As we will analyse in the next section, the poverty rates vary across these countries from low to medium levels despite the explicit goal of poverty reduction of basic and targeted pension systems. Following Korpi and Palme's paradox of redistribution we find that it is not the targeted systems that are best to reduce poverty, but the more encompassing ones (though Sweden no longer is the best performer). Generally we find that the first tier pension system is a necessary but not sufficient condition for reducing poverty, the second tier supplementary pensions also matter.

Among the Bismarckian social insurance systems it is the combination of first tier *and* second tier pensions that matters for poverty reduction, not only the first tier income function. Among the traditional Bismarckian systems, there have been no basic or targeted pension systems other than means-tested social assistance. Germany introduced only in 2003 an income-tested targeted benefit (only 2% receive benefits of around 19% in the early 2010s). Other Bismarckian systems that have only targeted benefits are Austria (11% receive a benefit of 28% average wages) and the Slovak Republic (22% AW). Minimum pensions for those with enough social contributions are provided to 11% of Belgian, 37% of French, and 29% of Luxemburgish pensioners with medium level benefits (28%, 23%, and 40% AW respectively).

Most Southern and Eastern European countries have also minimum pensions in addition to targeted ones: these are particularly widespread in Greece (69% but at 14% AW) and Portugal (60% at 34% AW), while only one third of Italian and Spanish pensioners receive these minimum pensions (at 19% and 34% AW respectively). The Czech Republic, Hungary and Poland have a mixture of low minimum or basic pension provisions, though Poland has also a targeted benefit (for 12% of Polish pensioners at 15% of AW). Among the other countries, the Baltic countries, Bulgaria and Romania as well as Cyprus and Malta have relatively meagre basic or minimum pensions. In general, the minimum or targeted benefits are thus too low to prevent poverty and there are notable differences in recipient rates, these are mirroring the varying needs posed by the contributory second tier social insurance. In these countries, the analysis of poverty needs to take into account both tiers in order to understand the relationship of income protection and material social exclusion.

## 3. Multipillar architecture and income inequality

In respect to pension systems, differences in the multipillar architecture in respect to access to particular schemes and their contribution-based benefit calculation of second tier benefits are of importance for the reproduction of inequalities from working live to old age or its redistribution. The main difference are in respect to pay-as-you go financed versus funded schemes. Pay-as-you go systems provide most often defined benefits (DB). More recently *notional* defined contribution (NDC) principles have been introduced in public pay-as-you go pension pillars based on recalculating benefits according to economic and/or demographic development, thereby emulating defined contribution (DC) systems. Among the funded systems, both DB and DC principles are common, though there is a trend toward DC schemes as underfunding of liabilities of DB schemes has become more common (Bridgen and Meyer 2009). In DC schemes benefits cannot be predicted as they depend on the future returns of investments portfolio, whereas in all other schemes benefits are calculated according to contribution, thus demographic or financial funding risks have to be shouldered by adjustment to contributions and/or benefits.

Defined benefit (DB) systems differ in their link between contribution and benefits: final salary DB or DB with best average during last years at work favour working careers of white-collar employees with steeper age-related earnings and more likely grade promotions, while benefits based on working live contribution records (or point systems) put more emphasis on longer working live and average earnings. The Swedish 1994 pension reform, for instance, found more support from blue-collar unions (LO) than white-collar organizations, given that the reform changed toward contributions from entire working lives. Chart 1 shows the second tier main benefit rules. DB systems still exist in nearly all Bismarck systems in Continental Europe and CEE countries. The exceptions are Italy, Poland, and Latvia, which have changed towards NDC in their mandatory public second-tier schemes since the late 1990s (Greece followed in 2015). Germany has a variant of DB, a point system, similar ones exist in Cyprus, Romania, and Slovak Republic but also the French private sector second-tier schemes (ARRCO; AGIRC).

Among the Beveridge-multipillar-systems, many funded second tier schemes have been changed from DB to DC or mixed systems. Switzerland has mixed DB occupational pension funds and the Dutch pension funds have been DB funded, though there are plans to move toward a mixed scheme following the underfunding problems after the 2008-crash. In the UK, the public S2P has been DB, while many occupational pension funds changed toward DC for new entrants and personal DC plans with op-out option were introduced in the 1980s (Bridgen and Meyer 2005). Sweden introduced a NDC for its public second tier pension in the 1994 pension reform, and added a mandatory private DC personal pension (Norway followed in 2014). Finland has a partially privately funded but mandatory DB scheme (also Iceland). Denmark has negotiated DC plans as second tier above the basic pension, and Ireland has only voluntary schemes (mainly DC plans).

In second tier DB schemes, the link between contribution and benefits depends on rules about necessary contribution years for a standard pension (in addition to the minimum rules). The necessary number of years for early and standard pensions are important factors in determining pension benefits (Ebbinghaus and Hofäcker 2013; Hofäcker and Unt 2013). The longer the period, the more it is a problem for those with interrupted or shorter working lives as they will receive benefit reductions. Thus the number of years for a standard pension is an important indicator across pension systems (Frericks et al. 2009), though information is not always available for all DB schemes (see Table X). According to the

OECD, few countries have relative low number of years for a standard pension: Spain and Slovenia (15 years), Italy and Hungary (20) and Poland (25 years) for full minimum benefit, though in most other Bismarckian systems with DB benefits these range around 30-35 years (Portugal, France, Czech Republic). Standard pensions provide full benefits from 35 years (Greece, Spain, Danish ATP), 40 years (Luxembourg, Italy, France 42.5), and 45 years (Austria, Belgium, Germany). Basic pension also provide full benefit only with similarly long contribution records (Finland 40, UK 44 years) or according to residency duration (and retirement age).

The earnings *ceiling* of the second-tier pension insurance as well as any regulation of maximum pension benefits are important for the income maintenance of high income earners and thus inequality. The lower the earnings ceiling of public (or mandatory private) pensions, the more there is an income gap for these groups and demand for voluntary private pensions. Thus income ceilings might decrease reproduction of inequalities in working lives by providing relative flat second tier income provision, but by the back door it may increase more inequality by leaving higher earners to save via voluntary private schemes. A high ceiling has indeed "crowded out" the development of private pensions in many Bismarckian systems (Ebbinghaus and Neugschwender 2011). The Bismarckian social insurance with relative low ceilings (below 1.5 times average earnings) are (according to OECD 2015): Belgium and Cyprus (1.1), Austria (1.45), Germany, Slovenia and Spain (1.5), whereas some others have higher rates: Luxembourg (1.8), Poland (2.5), France (private employees 3.0), Italy and Greece (3.3), and Slovakia (5.0). Among the Beveridge systems, it is usually the (quasi-)mandatory occupational and/or personal pensions that provide income maintenance. The British, Dutch, Finnish, Swedish and Swiss occupational pensions have no ceiling (also the Islandic public scheme has none), thus providing considerable income replacement for higher income earners (Neugschwender 2011; Neugschwender 2015).

In addition, coverage in public and particularly private pension schemes is a major issue for inequality (Ebbinghaus and Neugschwender 2011). The basic pensions do cover every resident or require contributions from everyone (British and Swiss pensions). In the case of Bismarckian pension schemes, most countries have moved to relatively universal coverage, though self-employed, farmers, or civil servants are sometimes excluded from the public scheme. Germany is a case where most self-employed are excluded (though some free professions have special occupational schemes) and tenured civil servants ("Beamte") have a special retirement pay scheme (paid out of the public budget). In respect to private pensions, the arrangements across countries are very different, ranging from mandated occupational pensions (Switzerland since 1985, many CEE countries since the late 1990s) to quasi-mandatory negotiated pensions that might be extended to all workers in a sector by the ministry (as in the Netherlands), more scattered sectoral schemes or voluntary firm-sponsored schemes. Subsidies for low income and families might be also a means to increase coverage of voluntary personal pensions (e.g. German Riester pension) or opt-out of public schemes (as in Britain until recent reforms).

## 4. Long-term poverty trends (LIS poverty rates) since the mid-1980s

From a long-term perspective, old age poverty rates have decreased due to the expansion of pension systems until the more recent reforms. The Luxembourg Income Study (LIS) provides comparable indicators on poverty rates of older people (age 65 and older) and total population for selected countries with income surveys conducted irregularly across time (Smeeding 2001). For LIS *Key Figures*, the equalized household income was divided by the square root of the number of household members. Earlier analyses

of poverty among elderly showed varying results in respect to over or underrepresentation of poverty among the elderly in comparison to the general population across the OECD countries at least until the mid-1990s (Disney and Johnson 2001; Disney and Whitehouse 2001; Disney and Whitehouse 2002). An analysis of a larger set of European countries is possible with LIS data since the 1980s (LIS wave 2), and we will analyse these for three decades (mid-1980s, mid-1990s, and mid/end-2000s). Four poverty rates are available: severe poverty rate (40%), standard poverty rate (50%) and risk-at-poverty rate (60% of median income). Given gender differences in life expectancy, more women than men are among the elderly (65+) and they have often lower (own or survivors) pensions than men. Previous research shows considerable gender gaps in elderly poverty across OECD countries using LIS data (Gornick et al. 2009; Siegenthaler 1996; Smeeding and Sandström 2005), we will study the gender gap in the later analysis with EU-SILC indicators more closely.

Demographic changes from cohort to cohort need to be taken into account when analysing historical poverty trends for the elderly (Neugschwender 2014). In the case of mid-1980s (LIS wave 2), the elderly (65+) were born before the early 1920s, while in the mid-2000s before the 1940s, thus they had entered the labour market before or after the Second World War respectively. While in the case of the early mid-1980s, the poverty rates reflect rather traditional and difficult working lives under still insufficiently developed pension systems. In contrast, the mid-2000s captures the more recent situation of pensioners that have lived through post-war economic growth to limits and an expanded welfare state already under pressure of austerity. The most recent reforms of the pension systems that started in the 1990s in some countries and became more widespread across Europe during the 2000s have been only gradually and partially applied to these cohorts (Myles and Pierson 2001). Note selection in country coverage: poverty data for CEE countries other than Poland is not available for the early LIS wave 2 (mid-1980s) and the cohorts of pensioners in these transition economies in the mid-2000s have lived considerable part of their working lives under socialist economy (with high general participation rates and low earnings inequality). Moreover, pension reforms introducing mandated or voluntary funded supplementary pensions in Bismarckian or CEE countries since the mid-1990s have not yet had a major impact, in contrast to those early Beveridge multipillar systems.

Applying the discussed country clusters we compare as a first step the three poverty indicators of the elderly (65+) in comparison to the total population rates for the three decades (see Figures LIS.1-3) prior to the financial market crash of 2008. The main poverty patterns show that severe poverty (at 40% of median income) has been reduced across the three waves with each decade (LIS waves 2, 4, 6/7) except for Britain and Spain, which had significant increases of more than 2 percentage points, and Estonia (since the mid-1990s). In respect to the conventional standard poverty rate of 50% and the risk-of-poverty rate of 60%, the trends are more differentiated. Across the three decades we find substantial declines by more than 10 percentage points for both poverty indicators in Denmark and Norway among the Beveridgean systems as well as Austria and France (as well as Greece since mid-1990s) among Bismarck-countries. However, there are also some countries with considerable increase in both poverty indicators, most notably Ireland, Belgium and Spain as well as Estonia (since mid-1990s). The cross-national variation between the countries is much larger in respect to the 50% and 60% poverty rates than the more severe material deprivation line (40%). In respect to the level of poverty rates, we can detect some patterns across the six cluster of pension systems introduced in the typology discussion.

The *Beveridge Lite* systems (CH, IE, UK) have rather ungenerous basic (contributory) pension with means-tested supplements as part of a multipillar system with uneven coverage, this (re)produces relatively high severe poverty rates among the elderly which tend to be higher than for the total population. Across the three waves, standard poverty rates at 50%-level ranged from above 7-8% to around 14-20% (w2 CH, w7 IE, UK 14%). The at-risk-of-poverty rate ranges from every fifth Swiss in mid-1990s to every third Irish elderly since mid-1990s (or more than every third Swiss before the mid-1980s reforms). These liberal multipillar systems have thus produced considerable poverty despite its contributory basic security and means-tested supplements (Beveridge basic pension or Swiss AHV). Moreover, the multipillar system put many elderly at risk of poverty as they lack enough supplementary earnings-related pensions, thus excluding a quarter (UK) if not a third (CH, IE) from a decent living standard. These three Beveridge lite systems rank among the top 10 of the European countries in poverty risks.

A) In the *Beveridge Plus* systems with more encompassing minimum and supplementary pension provision (Nordic welfare states and the Netherlands), severe poverty rates are very low. In the past and still in Denmark and Iceland today, this has been due to relative generous universal basic pensions and in most of the reformed systems (Finland and Sweden since 1990s, Norway since 2000s) due to income-tested guaranteed benefits for those without sufficient pensions. Standard poverty rates (50%-level) are also relative low, except Denmark and Norway with higher levels during the 1980s but declining thereafter. Nevertheless, the differences in the timing, scope and funding of multipillar systems accounts for differences in income inequality: the at-risk-of-poverty rates (60%-level) have been around one third for elderly in Denmark, Finland and Norway in the 1980s and again at that level in Denmark and Finland more recently. The same risk ranges about one in five among the other Nordic countries and one in ten among Dutch elderly more recently. Note that Sweden and Norway have higher levels of poverty in the 2000s following their reforms ending basic pensions.

B) Among the Central and Eastern European (CEE) countries of the Visegrád group (except Slovakia), we can compare trends only after the transition since the 1990s. The three "Bismarck Plus" systems (CZ, HU, PL) show very low severe and standard poverty rates with declining tendency since the 1990s (in Poland since higher levels in 1980s). The at-risk-of-poverty rate has been relative low after the transition: only every fifth elderly at risk in Czech Republic, Hungary or Poland (albeit every third Polish elderly in the mid-1980s), and this risk sank further. The low social inequality, high employment rates for both gender and encompassing social insurance schemes have been very effective in reducing poverty for these economically strong transition countries. Note that mandatory private pensions introduced in Hungary and Poland in the late 1990s have been unimportant for these cohorts (Hungary has abolished these after the crash, and Czech Republic only introduced voluntary schemes).

C) In contrast, the other CEE transition countries with weaker social insurance systems (Bismarck lite) and newly introduced funded pensions that do not yet have any impact suffer from higher severe and standard poverty rates (similar to Southern EU states). Estonia has a rather meagre basic provision thus leading to particular high 50&-poverty rate: nearly 30% of the elderly in the mid-2000s (twice as much as in mid-1990s). Above the poverty line are also some 16% of Slovene elderly but less than 10% of Slovaks. The risk of poverty has been above 20% in all three countries, and it increased to 45% in Estonia and 25% in the two other countries. Compared to the other CEE functioning pension systems, these three countries have nearly double (or triple in Estonia) risks of poverty at the

60% level. This selection of CEE lite systems indicates the particular problems of poverty in the Eastern rim (the EU-SILC analysis will show similar problems for other EU new member states).

D) Among the traditional *Bismarck Plus* countries (AT, DE, FR, LU) with generous earnings-related social insurance, the severe poverty has been below 10% and even around 5% more recently, except for France (12%) in the mid-1980s. The standard poverty rate at 50%-level is also rather low (not more than 10%) since the mid-1990s, halving the rate from the mid-1980s. Finally, the at-risk-of-poverty rate has declined considerable from 20-30% to 10-20% in all four countries, with the best results achieved by Luxembourg (thanks to its means-tested basic benefits). By the time of the first wave of pension reforms in the 1990s, these Bismarckian systems have been relative successful in reducing poverty over time and allowing status maintenance for a considerable part of the population. Thus not even every fifth pensioner is at risk of poverty at all thanks to relative encompassing social insurance system.

E) The situation is considerably more aggravated among the Bismarckian Lite systems of Southern Europe and Belgium which provide more meagre social insurance and reproduce inequalities from working lives (for instance between public and private sector workers). Greece had relative higher levels among all three poverty indicators in the mid-1990s, while all other countries show some increase in poverty levels since the mid-1980s (no data for Greece available). While Belgium and Italy fare better in severe and standard poverty rates (40% and 50%-levels respectively), Spain and Greece show already some problems in the two most recent decades (prior to the 2008 crash). Market and post-market inequalities are more marked in these countries and therefore the risk-at-poverty increased from 20% in the mid-1980s to above 30% at least for one of the two periods thereafter. Similar patterns also apply to the other (new) member states of the Southern periphery (Cyprus, Malta, Portugal) as will be shown in the EU-SILC analyses.

The comparative analysis of the last three (or two) decades of poverty indicators based on LIS data revealed considerable cross-national variations, but also similar patterns along the suggested pension system clusters. In comparison to overall poverty levels for the total population, severe poverty tends to be less common for the elderly in most countries, except the Beveridge Lite, CEE Lite, and Bismarck lite systems. Except for the Netherlands and Luxembourg as well as the CEE plus countries, nearly all others had significantly lower standard poverty rates (50% level). In respect to the risk-of-poverty rates (60% level), these are in most countries significantly higher than in the overall population, except for the same set of exceptional countries. The post-transfer inequalities among the elderly are particular pronounced in Belgium, Denmark, Estonia, Finland and Switzerland (around double the total rate), followed by Ireland, Norway, Slovakia, Slovenia and Sweden (above 1.5 times). Thus pension system as minimum income protection prevent severe poverty more broadly than in the working population, but poverty levels in old age are often more amplified than for the total population for lack of additional work and other income sources. Moreover, the earnings-related and multipillar elements of today's pension systems increase inequality. In fact, the lack of sufficient adequate pensions not only reproduces but also amplifies market inequalities in old age.

## 5. Working and older people's poverty and inequalities

Using more recent and comprehensive indicators (based on EU-SILC), we now turn to the more recent patterns of poverty and income inequalities over the last decade (2005-2014). As a first step we compare the at-risk-of-poverty rate (60% of median income) among the elderly (aged 65 or older) with the income situation of earnings inequality (S8/S2 indicator) in the working population (under 65) for the decade since 2005 (annual averages). This cross-sectional comparison allows us to evaluate the concurrent level of market induced primary earnings inequality during the working life with the poverty risk level among the elderly. Although such a cross-sectional comparison is merely approximate given that today's pensioners have worked at earlier periods, this analysis evaluates the current societal level of inequality produced by the market economy with the publicly accepted level of post-transfer/tax poverty among the elderly across Europe. While labour relations, in particular collective bargaining between trade unions and employers, largely determines the wage inequalities of the working population (aged 18-64), the poverty levels of the elderly (65+) derive from both, their past market income and their pension entitlements. Thus elderly poverty is indirectly linked to wage inequality of the past, but also depends on income transfer systems, while poverty at working age is more influenced by wage inequality and more secondarily by state intervention via minimum income (or social assistance) and taxation (Bahle et al. 2010).

Figure EU.1 maps the bivariate relationship of the at-risk-of-poverty rate (measured at 60% median equalised income) of the working population (aged 18-64, horizontal axes) and of the elderly (aged 65 and older, vertical axis) based on EU-SILC for 2005 and 2014. At the beginning (in 2005), the risk of poverty was higher for the elderly than for the working population for most countries (above the diagonal) except for some CEE transition economies (PL, HU, CZ, SK) and few others (NL, LU) with relative low elderly poverty. Most of the reminder, in particular some of the Liberal, Southern and other Eastern European countries show considerably higher levels of poverty for elderly than for the working population, although they tend to have comparatively higher levels. A decade later, following the post-2008 Great Recession, the picture has changed as more countries have moved (see next panel B: 2014) towards higher poverty rates among working than the elderly population. In fact, this change in position is due to both an increase of poverty in the working population in many crisis-ridden countries (more countries on the right in panel B) and a more secular decrease in poverty among the elderly (countries below the diagonal in panel C: elderly 2005-2014). Note that due to lower relative median income as a consequence of the Great Recession Great recession (Jenkins et al. 2013), the working population poverty rates might increase due to less earning capacity, while the social transfers for the elderly might be less affected and thus relative poverty rates decline relatively to the total.

In order to grasp the impact of market-induced inequality during working age on poverty risks (60%-line) in old age, we compare in the next figure (see EU.2) an indicator of income inequality for the working population and for the elderly. The indicator measures the gap between the incomes of the top 20% (S8) income group to the lowest 20% (S2) of the income distribution according to Eurostat definition (S8/S2 indictor). The income spread ranges between 3.1 to 8.2, that is, the top 20% working age people earn triple to eight times more than those in the bottom 20%, while this spread ranges only from 2.3 to 5.7 among the elderly (65+), thus income inequality is more compressed in old age. Only very few countries show a slightly higher income inequality in old age than for the working population (above the diagonal), whereas most other countries have somewhat more primary, market-induced inequality. But note that some countries in Southern and (peripheral) Eastern Europe tend to have considerably high

inequality during working live (on the right hand side of panel A and B). With time, social inequalities seem to have become more compressed among the elderly, though some countries have had more income spread among the elderly at the beginning, while other countries more at the end of the observation period (see panel C: elderly 2005-14).

Combining the two indicators on the risk of poverty and "top 20%/bottom 20%" income inequality, we can classify countries according to their level of market-induced (earnings) inequality for the working population (18-64) and post-transfer/tax poverty for elderly (65+). Chart 2 provides such a typological overview based on period averages (2005-2014): we can see that European societies differ in those with high, medium and low levels of inequalities for the workforce and poverty levels for the elderly population. Some of the Beveridge(+), CEE(+) and Bismarck(+) systems are among those with low earnings inequality and low old age poverty: the Nordic systems of Island, Norway, Sweden and (at double low-medium level) also Denmark, as well as the Netherlands, but also CEE-Plus systems (Czech Republic, Hungary and Slovakia), and more surprisingly (at low medium earnings levels) also Continental systems like Austria, France and Luxembourg. Germany and Poland had somewhat higher earnings inequality but still low/medium elderly poverty, whereas Finland and Slovenia tend toward low wage inequality but medium level of poverty. The liberal Beveridge Lite systems are at medium (Ireland, Switzerland) or medium-high (UK) levels of earnings inequality and medium-high to high elderly poverty rates. Market inequalities are also reproduced in the Southern Bismarckian Lite countries: Italy, Spain, Greece, Spain, and Portugal, while Belgium and Malta have higher old age poverty risks than earnings inequalities. The other transition countries, the peripheral CEE with lite pension systems have also high levels of earnings inequality and medium-high if not high level of elderly poverty risks. This comparative overview shows that there is a general tendency for countries to cluster in either corner of low/low-medium or medium-high/high inequalities for both, working and elderly populations. Nevertheless, few countries divert for one of the two inequalities ranks in this European comparison. We can interpret the clustering of both earnings inequality and old age poverty as indicating that European societies provide for similar levels of inequality prior and after retirement but also that the latter retirement income systems tend to reproduce the former market inequalities albeit imperfectly.

Chart 2: Earnings inequality of working population (18-64) and elderly poverty (65+), EU-SILC 2014

| Earnings Inequality (18-64) | Elderly poverty (65+) | | | | |
|---|---|---|---|---|---|
| | L | LM | M | MH | H |
| L | CZ, IS<br>SK, NL | NO<br>SE | FI<br>SI | | |
| LM | HU<br>LU | FR, AT<br>DK | MT | BE | |
| M | | DE | | IE | CH<br>CY |
| MH | | PL | IT | UK | |
| H | | | LT | EE, RO<br>PT, EL, ES | LV<br>BG |

Source: earnings inequality (S8/S2) for working population (18-64) and at risk of poverty rate (60% level) for elderly (65+) based on EU-SILC 2014; pension systems with basic security underlined.

## 6. Housing and old age poverty

Since the use of poverty rates is based on disposable household income, the housing situation is only incompletely taken into account (Fahey et al. 2004). This could lead to some distortions, particularly for older people living in social housing at lower rent than under market conditions and older people who are living in outright-owned (i.e. mortgage-free) homes compared to those older tenants that pay market-rate rents or those home owners still paying back their mortgage. Since the standard average household (single or couple) in working-age used for median disposable income would pay market-rate housing, those older people more likely to be in social rent or mortgage-free owned homes would be at an advantage, thus over estimating their housing costs and thus needs. While social housing benefits is counted as part of disposable income (but not non-monetary housing benefits), neither housing costs (such as mortgage payments or rent), nor the value of mortgage free or below market social rents are taken into account in disposable income and thus poverty rates. Moreover, wealth (in particular housing assets) is not considered in the income analysis undertaken here, but home ownership can function as voluntary savings for old age, particularly if the mortgage is low at time of retirement (Doling and Ronald 2010; Elsinga and Mandic 2010). In order to test the potential influence of different housing situation in old age on the observed poverty patterns across Europe, we will briefly review some indicators on the distribution of home ownership, tenant status and social housing among older people in relation to old age poverty patterns in Europe using EU-SILC data.

The housing situation of older people differs considerably across Europe and social class (Dewilde and Lancee 2013; Flynn and Schwartz 2017). Of those older people (age 65 and older not living in institutionalized homes), the highest homeownership rates are found in several post-socialist CEE countries (RO, LT, SK, HR, HU) with more than 90%, reflecting the privatization of homes during the transition to market economies. This top groups is followed by a secondary group composed out of Southern family home countries (ES, GR, IT), some more CEE countries with more notable tenant shares (BG, SI, LV, PL, EE, CZ) as well as Iceland, Norway and Finland with relative high Nordic rates. In a third grouping, still around two thirds of older people live in their own home, this is the case in United Kingdom, France, Sweden and Denmark as well as some smaller catholic countries (BE, PT, MT). The fourth, and notably lowest homeownership group (a little more than half of all elderly) is found in Germany and neighbouring countries (NE, AT, CH) as well as Cyprus. Ownership with still substantial mortgages are not reported for all countries, yet rates are high in most Nordic countries (except FI), Switzerland and the Netherlands, while they seem less significant in most Southern and Eastern European countries as well as Britain and Germany.

Across Europe, old age poverty among owners tends to be similar or lower than among tenants with the exception of Denmark and the United Kingdom (probably due to including housing benefits among social tenants). In some extreme cases, old age poverty rates are substantially higher for tenants than for owners, this is the case in Norway, Bulgaria and Slovenia, and at a more moderate level across countries as diverse as Germany, Spain, Finland and Sweden and the Baltics. Compared to the overall population, old age poverty is particularly high for both tenants and owners in Switzerland, Bulgaria, Estonia and Slovenia. In many countries, poverty among owners is relatively higher for older people than overall population, since the more selective working population that already owns homes tends to have a better income position than the larger older population in their own homes. Older tenants in social housing are considerable (above a quarter up to one third) in some Nordic countries (FI, IC, NO, SE), United

Kingdom, Switzerland and two CEE countries (SI, SK). The medium to high level of poverty among older tenants in these Nordic countries (except IC) and Switzerland seems to be partially compensated by a similar share living in social housing. This is not the case in the some of the Eastern and Southern countries with more than 20% poverty rates among tenants but a much smaller proportion living in social housing. For those tenants living in countries with low old age poverty, some older tenants like in the UK still profit from a larger social rent sector, while in other countries such as France tenant poverty and social housing rates tend to be low (around 10%). Thus the differences in the availability of social housing for those potentially threatened by old age poverty should be taken into account when evaluating the poverty rates comparatively for elderly age group in particular. Conversely, the high share of outright ownership among those living in poverty might be seen as a moderating factor in respect to those without such a home who have to pay market rents, though some might profit from social housing at lower prices. More research would be needed to get a more detailed understanding of the real costs and benefits for older peoples living in social housing, privately rented tenure or fully or partially mortgage free homes. Such analysis requires individual survey data analysis with good housing data which is beyond the scope of this macro-indicator study.

## 7. Analysing older people's poverty risks: gender and households

Turning to a more sociological analysis of gender and household differences, we find indication that cross-national differences in labour force participation during working live and the differential gender impact of pension systems matters. Analysing the poverty risk (60%-level), EU-SILC data suggests considerable gender differences in poverty level across Europe. Figure EU.4 shows that for 2005 poverty levels for women (with the exception of Luxembourg) are either similar to men (on the diagonal) or in many countries substantially higher. In particular, the Baltics (EE, LT, LV) and two Nordic countries (FI, NO) show considerably higher poverty among women than men. Many other countries follow with 5 to 10 percentage point higher levels. There have been some more compression towards lower poverty levels for both men and women in 2014, though the Baltics still have relatively high gender gaps (see Panel B: 2014). If we analyse the gender gap, the ratio of female to male poverty rates, this gap has been more elevated at the beginning than the end of the period (see Panel C: 2005-2014), but Norway stands out with a stagnating large gender gap (4 times the relative low level of poverty among men). In Norway, the Baltics and other countries with high gender gap, the basic pensions were not generous enough to keep women above the poverty risk, while men had additional income sources that reduced this risk. It should be noted that women tend to be older than men due to longer longevity and they tend to be single. In particular, many widows receive indirect survivor pensions in Bismarckian systems, while they receive the same basic pension in Beverdige-type systems but private benefits may vary.

A further analysis looking at household composition shows the variation in poverty across households: elderly single households are much more prone to poverty risks than elderly couples. In the case of couples, pooling of retirement income is possible and economies of scale are used to calculate poverty risks (Eurostat equalised income scales). Across Europe, while only 10-25% of men are living on their own, 25 to 45% of older women (aged 65 and older) are in single households (usually double the overall societal rate) due to their longer life expectancy than men (EU-SPC 2015: 70). In the case of single households, the majority of which are divorced or widowed women, the poverty risk are a function of the indirect widow benefits and/or own pension rights based on past contributions and/or residency. Figure

EU.5 provides a comparison of at risk of poverty rates for elderly couples versus elderly single households. As Panel A (2005) clearly shows, all single households (except in Malta) have similar if not in most cases higher poverty rates than couples. Again, the Baltics, other CEE lite systems, the two Nordics (FI, NO) and particularly Ireland show elevated levels of poverty for elderly single households than for elderly couples. While the overall poverty risk was reduced for couples, the contraction was not as much for elderly singles (mostly women), though the Baltics were still having the largest problem. While most countries improved the situation for singles over the decade (below the diagonal in Panel C: 2005-2014) with few exceptions (Sweden, Germany, Poland, Latvia, and Estonia). Most impressive is the improvement in Ireland that supressed the rate from 60% to 10% within less than ten years.

**Chart 3: Old age income poverty and inequality of elderly (65+), EU-SILC 2014**

| Elderly (65+) | | Poverty (60% level) | | | | |
|---|---|---|---|---|---|---|
| | | L | LM | M | MH | H |
| Income inequality | L | SK, CZ HU, IS | NO | | | |
| | LM | NL | PL | | BE, FI, MT SE, SI | EE |
| | M | LU | DK | AT EL | | LT |
| | MH | | IE ES | IT | DE UK | BG LV |
| | H | | FR | RO PT | | CH CY |

Source: income inequality (S8/S2) and at risk of poverty rate (60% level) for elderly (65+) based on EU-SILC 2014; pension systems with basic security underlined.

## 8. Conclusion: pension system redistribution and poverty levels

We need to have a closer look at old age poverty and pension features in order to understand to what degree retirement income systems reproduce market income inequalities or alter them via redistribution. A first indicator of pension systems is their overall level of benefits in old age compared to the earning levels of the working population. Eurostat's aggregate replacement ratio, measuring the relative median income of the elderly as share of the median equalized income of the working population, allows evaluating the living standard of the elderly compared to that of the working population. Figure EU.3 provides this aggregate replacement level in comparison to the poverty rate (60% level) for 2005 and 2014. In Panel A (2005) we can see a relative strong comparative negative relationship between poverty level and replacement level: the lower the overall replacement level, the higher the share of older people at risk of poverty. Again the countries with low old age poverty also tend to have higher levels of retirement benefits, maintaining a relative high standard of living (at least 80% of that of the median worker), while the countries with high old age poverty risks live in societies with less generous benefits (below the 80% mark). Over the decade (see Panel C: 2005-2014), the replacement level has improved for most countries (above the diagonal), though some countries have had slight decreases or stayed the same. While secular changes due to better educated and more active cohorts should improve the aggregate replacement rate, the reforms of pension systems (cut in benefits and slower indexation relative to wages) as well as the economic crisis reducing earnings capacities should have the reverse effect.

Using indicators from the most recent OECD study (2015), we can find some relationship between first tier minimum income protection for pensioners and the risk of poverty across Europe (OECD data is not available for all EU countries). Figure EU.6 Panel A provides a bivariate plot of the minimum income protection through basic pension, social pension and/or target benefits as % of average working income (most recent figures) and the risk of poverty of the elderly (2014). There is a negative relationship between minimum benefit level and poverty risk, thus countries with high old age poverty have only limited minimum benefits (such as EE, CH, DE, UK), while those with low poverty have more generous basic benefits (LU, DK, IE), at least in recent years. Moreover, we have to see that recipient shares of these minimum benefits might vary considerable (see panel B) depending on whether these are means-tested (Germany, and other Bismarck-schemes), income-tested benefits (several Nordic systems) or more universal basic pensions (DK, NL, IC). Finally, there is also a negative relationship between poverty risk and the relative income replacement, that is, the generosity of benefits compared to working income. This is in line with earlier research on pension generosity and poverty for EU countries (Zaidi et al. 2006). However, there are some basic pension systems that achieve low poverty despite lower replacement (DK, CZ), while others combine low poverty with relative generous benefits (such as FR, LU).

This comparative analysis of income poverty and inequality across Europe, has provided a long-term analysis of the development of the plight of the elderly in relation to the overall population with the help of LIS data and studied the more recent impact of socio-economic changes and changing pension systems on income situation in old age (using EU-SILC). These analyses were informed by a comparison of pension systems, classifying these as more or less Bismarckian social insurance or Beveridgean multipillar systems. The important first tier income function of basic old age security and minimum income protection were highlighted for severe poverty, but poverty at 50 or 60% levels also depend on the overall architecture of second-tier pensions, in particular whether these are public or private, (quasi)mandatory or voluntary, and DB or DC systems. Further analysis is needed to link these pension features to particular poverty and inequality outcomes. Moreover, the analysis of income inequality needs to be more fine-grained beyond differences in gender and household composition to evaluate pension outcome. This would also require to link labour market developments, in particular flexibilisation, with particular outcomes in old age, not least postponement of retirement and working pensioners. Moreover, this comparative longitudinal analysis was only retrospective, reflecting past trends and the current situation.

***References***


Adascalitei, D. (2015). 'From Austerity to Austerity: The Political Economy of Public Pension Reforms in Romania and Bulgaria'. *Social Policy & Administration*, online first.

Bahle, T., Pfeifer, M., and Wendt, C. (2010). 'Social Assistance', in F. G. Castles, S. Leibfried, J. Lewis, H. Obinger and C. Pierson (eds.), *The Oxford Handbook of the Welfare State*. Oxford: Oxford University Press, 448-461.

Bridgen, P., and Meyer, T. (2005). 'When Do Benevolent Capitalists Change Their Mind? Explaining the Retrenchment of Defined-benefit Pensions in Britain'. *Social Policy & Administration*, 39/7: 764-785.

--- (2009). 'The Politics of Occupational Pension Reform in Britain and the Netherlands: The Power of Market Discipline in Liberal and Corporatist Regimes'. *West European Politics*, 32/3: 586-610.

Christensen, K., Doblhammer, G., Rau, R., and Vaupel, J. W. (2009). 'Ageing populations: the challenges ahead'. *Lancet*, 374/9696: 1196–1208.

Dewilde, C., and Lancee, B. (2013). 'Income Inequality and Access to Housing in Europe'. *European Sociological Review*, 29/6: 1189–1200.

Disney, R., and Johnson, P. (eds.) (2001). *Pension Systems and Retirement Incomes across OECD Countries*. Cheltenham, UK: Elgar.

Disney, R., and Whitehouse, E. (2001). 'Cross-country Comparison of Pensioners' Incomes'. *Department of Social Security (UK), Research Report*, 142.

--- (2002). 'The Economic Well-Being of Older People in International Perspective: A Critical Review'. *LIS Working Paper Series*, 306.

Doling, J., and Ronald, R. (2010). 'Property-based welfare and European homeowners: how would housing perform as a pension?'. *Journal of Housing and the Built Environment*, 25/2: 227-241.

Drahokoupil, J., and Domonkos, S. (2012). 'Averting the funding-gap crisis: East European pension reforms since 2008'. *Global Social Policy*, 12/3: 283-299.

Ebbinghaus, B. (2006). *Reforming Early Retirement in Europe, Japan and the USA*. Oxford: Oxford University Press.

--- (ed.) (2011). *The Varieties of Pension Governance: Pension Privatization in Europe*. Oxford: Oxford University Press.

--- (2015). 'The Privatization and Marketization of Pensions in Europe: A Double Transformation Facing the Crisis'. *European Policy Analysis*, 1/1: 56-73.

Ebbinghaus, B., and Gronwald, M. (2011). 'The Changing Public-Private Pension Mix in Europe: From Path Dependence to Path Departure', in B. Ebbinghaus (ed.), *The Varieties of Pension Governance: Pension Privatization in Europe*. Oxford: Oxford University Press, 23-53.

Ebbinghaus, B., and Hofäcker, D. (2013). 'Reversing Early Retirement in Advanced Welfare Economies: A Paradigm Shift to Overcome Push and Pull Factors'. *Comparative Population Studies*, 38/4: 807-840.

Ebbinghaus, B., and Neugschwender, J. (2011). 'The Public–Private Pension Mix and Old Age Income Inequality in Europe', in B. Ebbinghaus (ed.), *The Varieties of Pension Governance: Pension Privatization in Europe*. Oxford: Oxford University Press, 384-422.

Ebbinghaus, B., and Whiteside, N. (2012). 'Shifting responsibilities in Western European pension systems: What future for social models?'. *Global Social Policy*, 12/3: 266-282.

Ebbinghaus, B., and Wiß, T. (2011). 'Taming pension fund capitalism in Europe: collective and state regulation in times of crisis'. *Transfer*, 17/1: 15-28.

Elsinga, M., and Mandic, S. (2010). 'Housing as a piece in the old age puzzle: The role of housing equity in old-age security in eight countries'. *Teorija in Praksa*, 47/5: 940-958.

Esping-Andersen, G. (1990). *Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.

--- (ed.) (1996). *Welfare States in Transition: National Adaptations in Global Economies*. London: Sage.

--- (1999). *Social Foundations of Postindustrial Economies*. Oxford: Oxford University Press.

EU-SPC (2015). *The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU*: European Union - Social Protection Committee.

EU-SPC(ICG) (2009). *Updates of current and prospective theoretical pension replacement rates 2006-2046*. Brussels: European Union (Social Protection Committee, Indicator Sub-Group).

Fahey, T., Nolan, B., and Maitre, B. (2004). 'Housing expenditures and income poverty in EU countries'. *Journal of International Social Policy*, 33/3: 437–454.
Ferragina, E., Seeleib-Kaiser, M., and Spreckelsen, T. (2015). 'The Four Worlds of 'Welfare Reality' – Social Risks and Outcomes in Europe'. *Social Policy and Society*, 14/2: 287-307.
Flynn, L. B., and Schwartz, H. M. (2017). 'No exit: social reproduction in an era of rising income inequality'. *Politics & Society*, 45/4: 471-503.
Frericks, P., Knijn, T., and Maier, R. (2009). 'Pension Reforms, Working Patterns and Gender Pension Gaps in Europe'. *Gender, Work and Organization*, 16/6: 710-730.
Goedemé, T. (2013). 'Minimum income protection for Europe's elderly. What and how much has been guaranteed during the 2000s?', in I. Marx and K. Nelson (eds.), *Minimum Income Protection in Europe*: Palgrave.
Goedemé, T., and Marchal, S. (2015). 'Exploring a blind spot in comparative pension reform research: Long-term trends in non-contributory pensions in Europe'. *International Journal of Social Welfare*, preview.
Goodin, R. E., and Rein, M. (2001). 'Regimes on Pillars: Alternative Welfare State Logics and Dynamics'. *Public Administration*, 79/4: 769-801.
Gornick , J. C., Sierminska, E., and Smeeding, T. M. (2009). 'The income and wealth packages of older women in cross-national perspective'. *Journal of Gerontology*.
Guardiancich, I. (2013). *Pension Reforms in Central, Eastern and Southeastern Europe: From Post-Socialist Transition to the Global Financial Crisis*: London.
Hinrichs, K. (2000). 'Elephants on the Move: Patterns of Public Pension Reform in OECD Countries'. *European Review*, 8/3: 353-378.
Hinrichs, K., and Jessoula, M. (eds.) (2012). *Labour Market Flexibility and Pension Reform. Flexible Today, Secure Tomorrow?* Basingstoke, UK: Palgrave.
Hinrichs, K., and Lynch, J. F. (2010). 'Old-Age Pensions', in F. G. Castles, S. Leibfried, J. Lewis, H. Obinger and C. Pierson (eds.), *The Oxford Handbook of the Welfare State*. Oxford: Oxford University Press, 353-367.
Hofäcker, D., and Unt, M. (2013). 'Exploring the 'new worlds' of (late?) retirement in Europe'. *Journal of International and Comparative Social Policy*, 29/2: 163-183.
Immergut, E., Anderson, K., and Schulze, I. (eds.) (2007). *The Handbook of West European Pension Politics*. Oxford: Oxford University Press.
Jenkins, S. P., Brandolini, A., Micklewright, J., and Nolan, B. (eds.) (2013). *The Great Recession and the Distribution of Household Income*. Oxford: Oxford University Press.
Kohli, M., Rein, M., Guillemard, A.-M., and van Gunsteren, H. (eds.) (1991). *Time for Retirement: Comparative Studies on Early Exit from the Labor Force*. New York, NY: Cambridge University Press.
Korpi, W. (2001). 'Contentious Institutions: An Augmented Rational-Action Analysis of the Origins and Path Dependency of Welfare State Institutions in Western Countries'. *Rationality and Society*, 13/2: 235-283.
Korpi, W., and Palme, J. (1998). 'The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries'. *American Sociological Review*, 1998/63: 661-687.
--- (2004). 'Robin Hood, St Matthew, or simple egalitarianism? Strategies of equality in welfare states', in P. Kennett (ed.), *A Handbook of Comparative Social Policy*. Cheltenham, UK: Edward Elgar, 153-179.
Leisering, L. (ed.) (2011). *The New Regulatory State: Regulating Pensions in Germany and the UK*. London: Palgrave.
Meyer, T. (2013). *Beveridge statt Bismarck! Europäische Lehren für die Alterssicherung von Frauen und Männern in Deutschland*. Bonn: Friedrich Ebert Stiftung.
Meyer, T., Bridgen, P., and Riedmüller, B. (eds.) (2007). *Private Pensions Versus Social Inclusion? Non-State Provision for Citizens at Risk in Europe* Cheltenham, UK: Edward Elgar.
Müller, K. (2008). 'The politics and outcome of three-pillar pension reforms in Central and Eastern Europe ', in C. Arza and M. Kohli (eds.), *Pension Reform in Europe: Politics, Policies and Outcomes*. London: Routledge, 87-106.
Myles, J., and Pierson, P. (2001). 'The Comparative Political Economy of Pension Reform', in P. Pierson (ed.), *The New Politics of the Welfare State*. New York: Oxford University Press, 305-333.

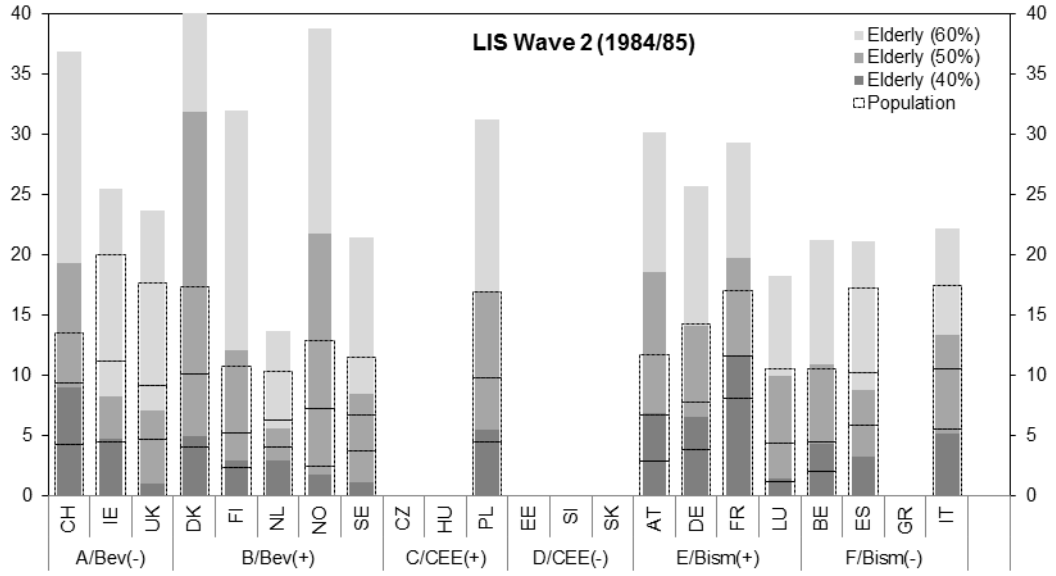
Neugschwender, J. (2011). 'Occupational Welfare Policies and Pension Income Inequalities: Case Studies of Pension Systems in Denmark, Finland, and the United Kingdom'. *LIS Working Paper Series*, 561.
--- (2014). 'Pension Income Inequality: a Cohort Study in Six European Countries'. *LIS Working Paper Series*, 618.
--- (2015). 'Pension Institutions and Income Inequality across European Societies: Denmark, Germany, Sweden, and the United Kingdom'. *LIS Working Paper Series*, 627.
OECD (2005). *Pensions at a Glance 2005. Public policies across OECD countries*. Paris: OECD.
--- (2014). *OECD Pensions Outlook 2014*. Paris: OECD.
--- (2015). *Pensions at a Glance 2015. OECD and G20 indicators*. Paris: OECD.
Ogg, J. (2005). 'Social exclusion and insecurity among older Europeans: the influence of welfare regimes.'. *Ageing and Society*, 25/1: 69-90.
Orenstein, M. A. (2008). 'Out-liberalizing the EU: pension privatization in Central and Eastern Europe '. *Journal of European Public Policy*, 15/6: 899 - 917
Palier, B., and Bonoli, G. (1995). 'Entre Bismarck et Beveridge: "Crises" de la Sécurité Sociale et Politique(s)'. *Revue française de science politique*, 4/45: 668-699.
Ragin, C. C. (1994). 'A Qualitative Comparative Analysis of Pension Systems', in T. Janoski and A. M. Hicks (eds.), *The Comparative Political Economy of the Welfare State*. New York: Cambridge University, 320-345.
Siegenthaler, J. K. (1996). 'Poverty among single elderly women under different systems of old-age security: A comparative review'. *Social Security Bulletin*, 59/3: 31-44.
Smeeding, T. (2001). 'Income Maintenance in Old Age: What Can be Learned from Cross-National Comparisons'. *Luxemburg Income Study Working Paper*, 263.
Smeeding, T., and Sandström, S. (2005). 'Poverty and Income Maintenance in Old Age: A Cross-National View of Low Income Older Women'. *Luxemburg Income Study Working Paper*, 398.
Soede, A., and Vrooman, C. (2008). ' A comparative typology of pension regimes'. *ENEPRI Research Report*, 54.
Sorsa, V.-P. (2015). 'Public–Private Partnerships in European Old-Age Pension Provision: An Accountability Perspective'. *Social Policy & Administration*, online first.
Whitehouse, E. (ed.) (2007). *Pensions Panorama Retirement-Income Systems in 53 Countries: Retirement-Income Systems in 53 Countries*. Washington, DC: World Bank.
Zaidi, A. (2011). 'Exclusion from Material Resources among Older People in EU Countries: New Evidence on Poverty and Capability Deprivation'. *Vienna Centre Policy Brief*.
Zaidi, A., Grech, A. G., and Fuchs, M. (2006). 'Pension Policy in EU25 and its Possible Impact on Elderly Poverty'. *CASE working paper*, 116.

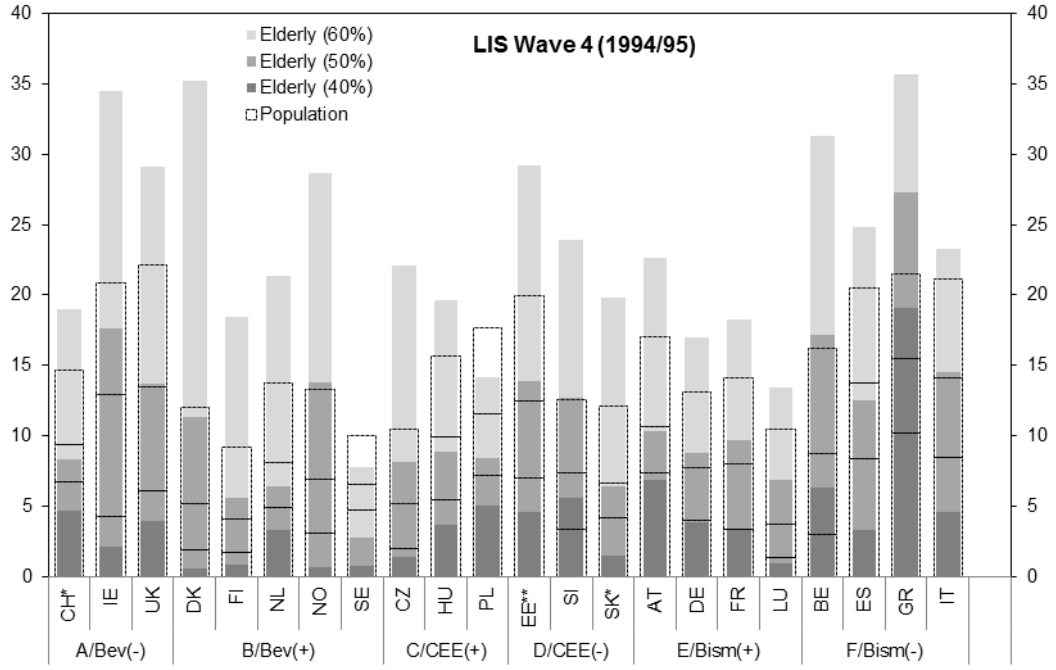
***Sources***

EU-SILC (2003-14) *The European Union Statistics on Income and Living Conditions* (EU-SILC), Luxembourg: Eurostat; http://ec.europa.eu/eurostat
LIS (…) *Key Figures*, Luxembourg: Luxembourg Income Studies; http://www.lisdatacenter.org/lis-ikf-webapp/app/search-ikf-figures

**APPENDIX:**

**LIS.1-3 LIS poverty rates (40-60%) for elderly (65+) and total population, Europe 1984-2008**



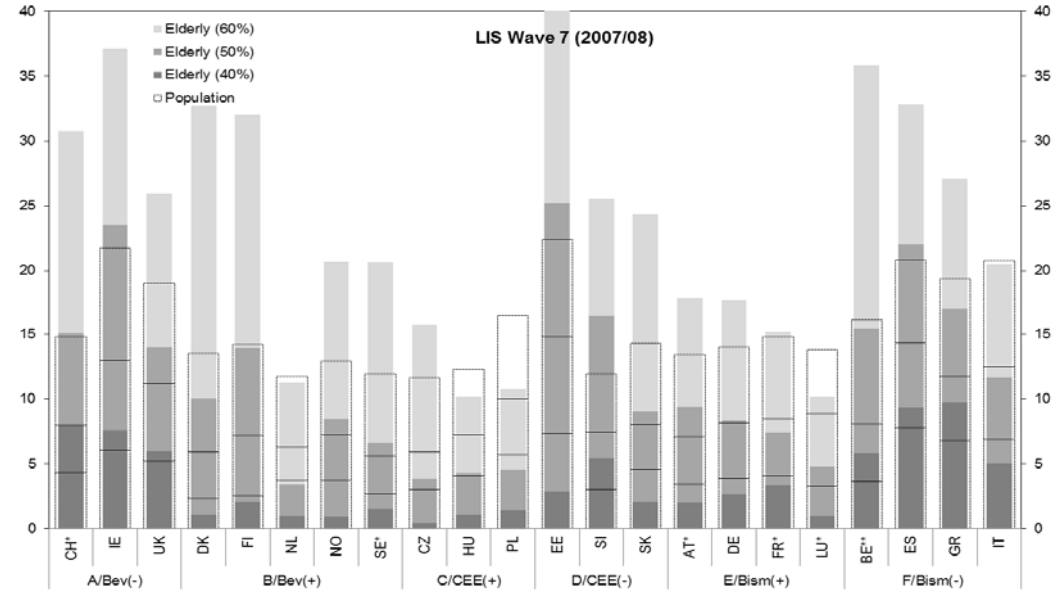
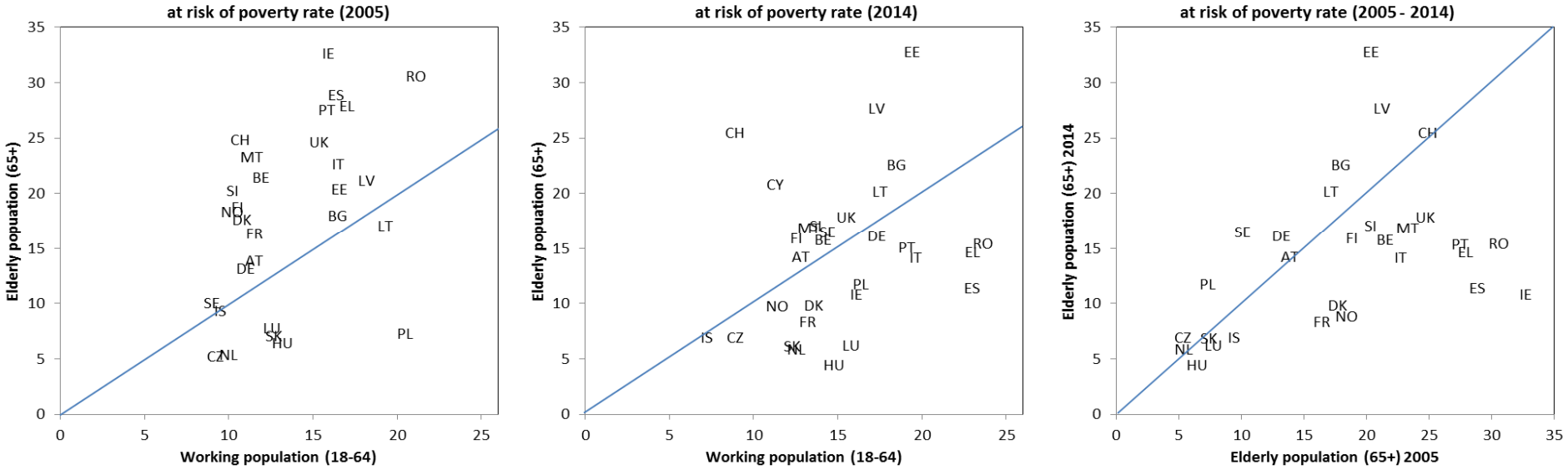
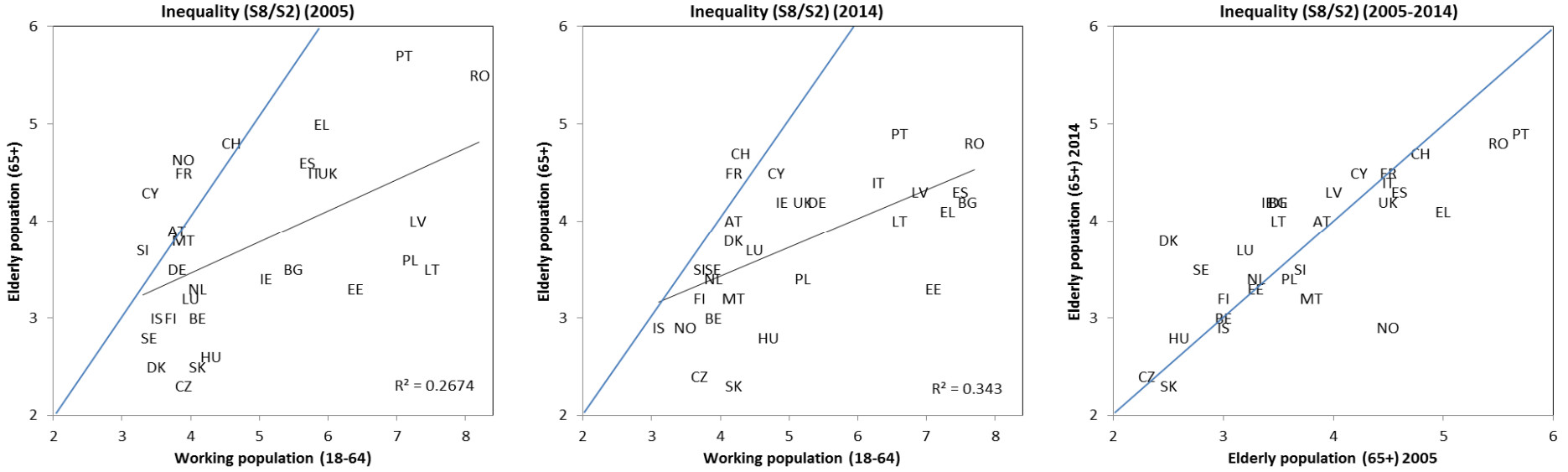



**Fig. EU.1: At risk of poverty (60% level), Working (18-64) and elderly (65+) population, Europe (EU SILC), 2005 and 2014**



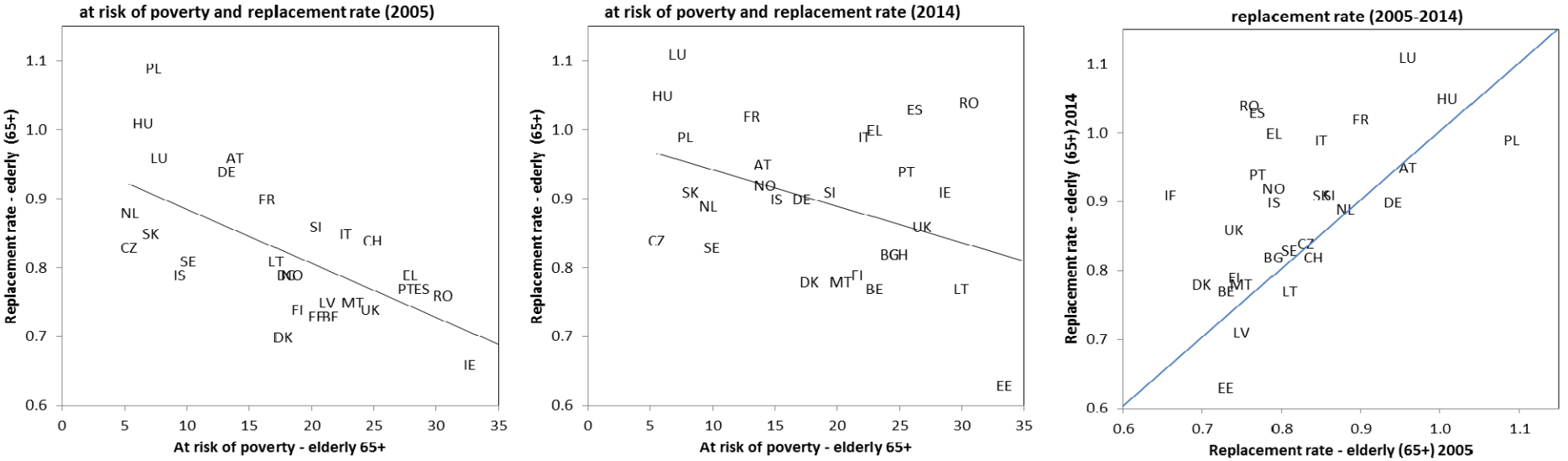

Note: Total % of population below risk of poverty (60% of median equalised income); EU SILC (li_04) 2005, 2014, except BG: 2006, CH, RO: 2007.

**Fig. EU.2: Inequality (S80/S20 ratio), working (18-64) and elderly (65+) population, Europe (EU SILC), 2005 and 2014**



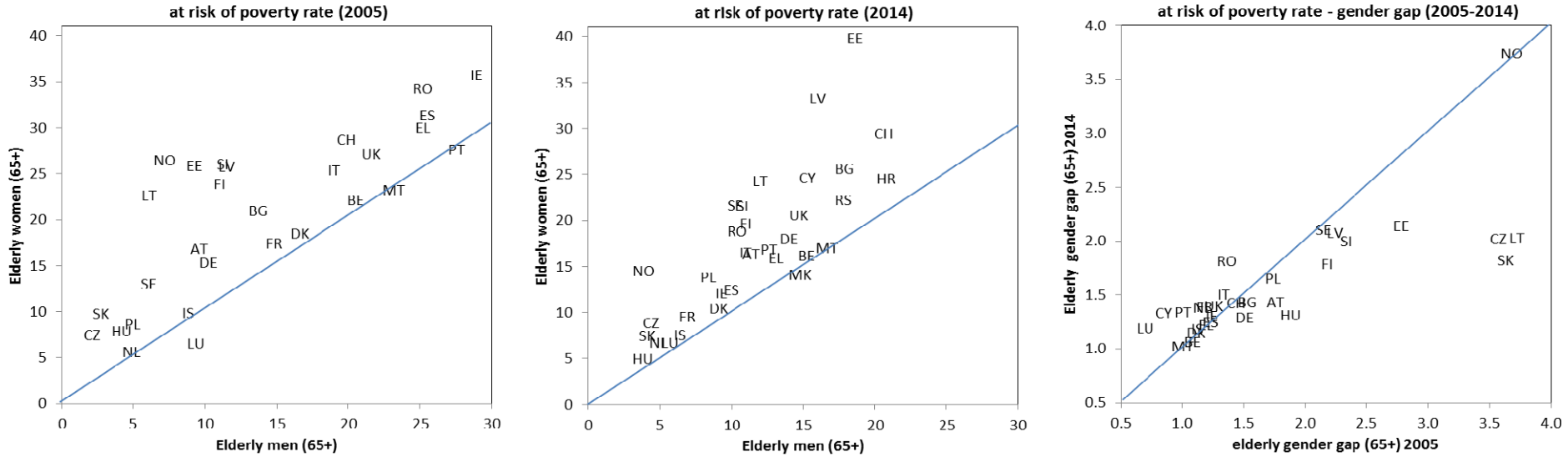

Note: Inequality: income quintile share ratio (80% to 20%); EU SILC (di_11) 2005, 2014, except BG: 2006, CH, RO: 2007.

**Fig. EU.3: At risk of poverty (60% level) and replacement rate for Elderly (65+), Europe (EU SILC), 2005 and 2014**



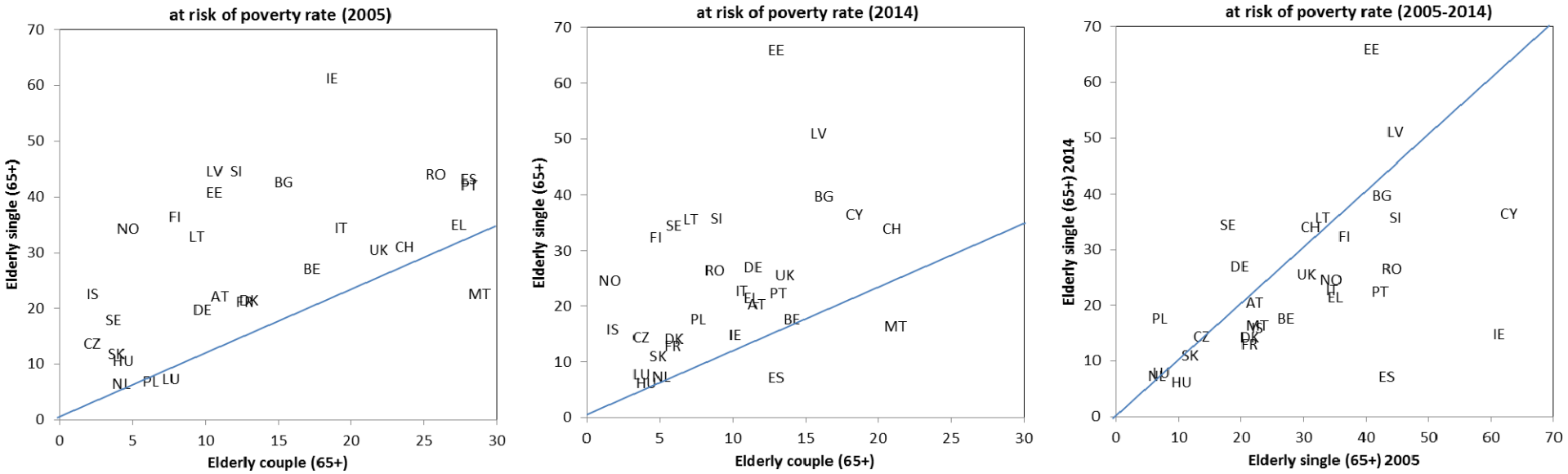

Note: Total % below 60% poverty rate and replacement rate (median income of elderly % working pop.); EU SILC (li_04; pnp2) 2005, 2014, except BG: 2006, CH, RO: 2007.

**Fig. EU.4: At risk of poverty (60% level), elderly (65+) men and women, Europe (EU SILC), 2005 and 2014**



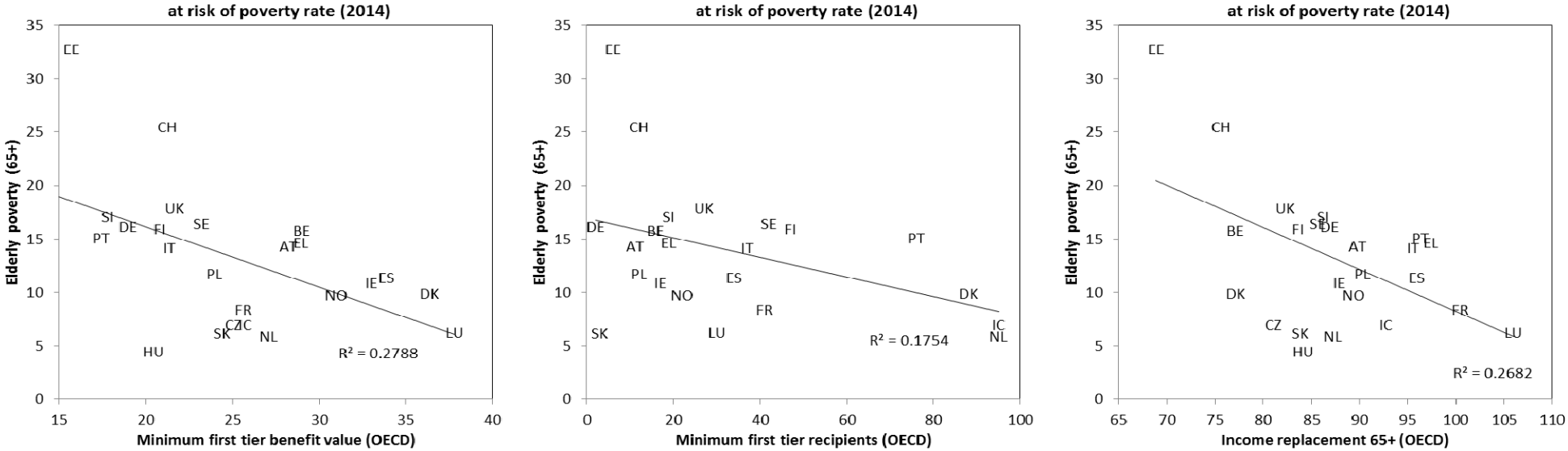

Note: Total % below 60% poverty rate; gender gap = rate for women divided by rate for men; EU SILC (li_04) 2005, 2014, except BG: 2006, CH, RO: 2007.

**Fig. EU.5: At risk of poverty (60% level), elderly single and couple households (65+), Europe (EU SILC), 2005 and 2014**




Note: : Total % below 60% poverty rate;; single and couple households with at least one elderly person (65+); EU SILC (li_03) 2005, 2014, except BG: 2006, CH, RO: 2007.

**Fig. EU.6: At risk of poverty (60% level), elderly single and couple households (65+), Europe (EU SILC), 2005 and 2014**




Note: : Total % below 60% poverty rate, elderly and couples 65+; EU SILC (li_03) 2014; minimum first tier benefit and recipient rate, income replacement of 65+; OECD (2015).