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Article

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PENSIONS AND INCOME INEQUALITY IN OLD AGE

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Introduction

Over the past decades, a trend towards greater private pension provision has emerged in many industrialised countries. This trend is the result of pension reforms aimed at alleviating the pressure of ageing populations on public finances (OECD 2009; Orenstein 2011). In many countries pension ages have been raised and/or public pension benefits have been cut. Some of these countries are now relying more heavily on private pension contributions. The literature on pensions, as well as that on income inequality and poverty, pays remarkably little attention to the distributive effects of these pension reforms on the elderly. Public pension benefits are often flat rate and generally tend to reduce income inequality and poverty in old age. Private pensions, on the other hand, mainly redistribute across the life cycle and are unlikely to have a strong impact on income inequality among the elderly. Thus, shifts from the public sector to the private sector in pension provision will probably lead to higher levels of income inequality and poverty among elderly people (Arza 2008). This would imply a trade-off between alleviating the pressure on public finances on the one hand, and income inequality among the elderly on the other. The empirical literature in this field consists mainly of either cross-national studies at a given moment in time (Smeeding and Williamson 2001), or descriptive analyses for a single country (Milligan 2008). As a result, relatively little insight has been gained into how pension reforms have influenced income inequality and poverty among the

elderly in advanced capitalist countries in recent decades. This article examines the relationship between developments in pension systems and the variation in income inequality and poverty among older people across European countries and over time.¹

The distributional impact of public and private pensions

In many European countries, pension provision consists of a mix of public and private pension schemes. Pension reforms have resulted in relative shifts towards more private pension provision (OECD 2009; Orenstein 2011). To compare changes in the public/private mix of pension provision, we use data from the most recent release of the OECD Social Expenditure Database (OECD 2010). The left-hand panel of Figure 1 presents the composition of pension expenditure in 15 European countries in 2007.² The figure shows that pension expenditure consists mainly of expenditure on public pension schemes. However, the situation varies considerably between countries. In the United Kingdom and the Netherlands in particular, expenditure on private pensions is relatively high. The right-hand panel of Figure 1 presents changes in the share of private social expenditure as a percentage of total social pension expenditure between 1995 and 2007. In a number of countries the magnitude of the shift remains limited, but in other countries like Belgium, Denmark and the Netherlands, there have been substantial changes.

The relevant question here is how relative shifts in pension provision affect income distribution among older people. The main objective of pension schemes is to redistribute resources across an individual's life cycle. However, most public pension plans are also designed to redistribute income between individuals, namely from the rich to the poor. Public pension plans are generally based on income-related funding by taxes or contributions, while benefits are flat rate.

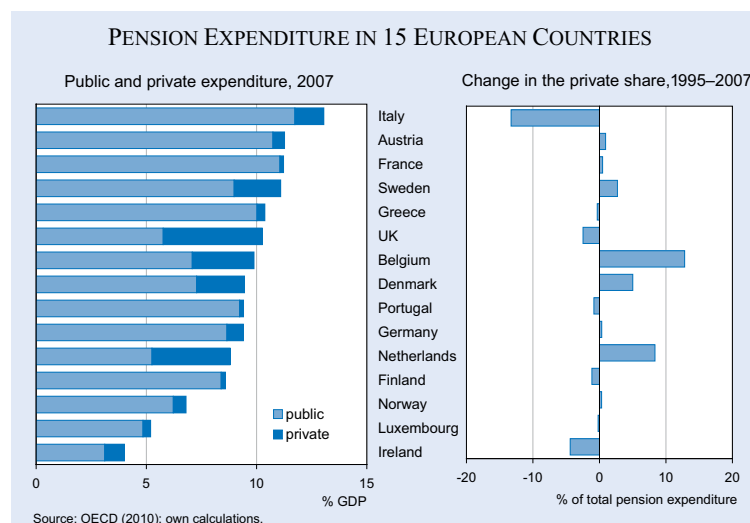
¹ See Van Vliet et al. (2012) for a more detailed analysis.

² Unfortunately, pension expenditure data is only available up to 2007.

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Figure 1



This strongly benefits lower income groups and reduces income inequality among the elderly (Wang, Caminada and Goudswaard 2012). In most countries public pensions are seen as part of the safety net, generating large anti-poverty effects. The level of public pension benefits is such that a relatively small percentage of pensioners fall below the poverty line. Wu (2005) indicates that, without social old age and survivor programs, over half of the elderly would live in poverty.

Private pension plans (including occupational pensions), by contrast, are based on a link between contributions paid and benefits received and therefore are not expected to contain elements of (ex ante) income redistribution. They mainly reallocate income over the life cycle. A private pension insurance is actuarially fair as a rule. This means that each individual is provided with benefits whose actuarial value is equal to his/her contributions, given the chance of the insured event occurring. This is the case for individual private pension insurances that have a defined contribution character. However, private earnings-related pension schemes (in the second pillar) may not be actuarially fair and may contain elements of redistribution. This is often the case when (supplementary) private schemes are negotiated by social partners in collective labour contracts. These schemes are mandatory for (a group of) workers. Defined benefit pension schemes, for example, generally redistribute resources both within generations (for instance through redistributive elements such as thresholds or ceilings) and across generations (risk sharing). Tax advantages (to households or to employers) can also be used to stimulate the

provision of private pensions. This is often the case with supplementary pension programmes, where contributions are tax exempt (Yoo and De Serres 2004). The tax advantages related to supplementary private pension plans are positively related to income levels in most countries, and thus favor the wealthy (Goudswaard and Caminada 2010).

In short, it seems plausible that private pension schemes will generate less income redistribution from the rich to the poor than public programmes. This is

confirmed by empirical research. A number of cross-sectional studies indicate that income inequality among elderly people is lower in cases where larger shares of the elderly's income exist as public pension benefits (Brown and Prus 2004; Weller 2004; Fukawa 2006). The number of studies on the income effects of private pensions is considerably smaller, but for Canada Schirle (2009) found that a larger private share in the pension provision is associated with increasing income inequality among the elderly. Comparable effects have been found for poverty. Based on country-specific analyses over time, Oshio and Shimizutani (2005) and Milligan (2008) concluded that a larger public share in the pension provision is related to less poverty among elderly people. Hughes and Steward (2004) found that increases in the private share are associated with an increase in the poverty rate among elderly people. Hence, shifts from public sector to private pension provision can be expected to lead to higher levels of income inequality and poverty among the elderly.

Income inequality and poverty among older people

We use two indicators provided by Eurostat (2011) to analyse income inequality and poverty among older people across countries. Income inequality among the elderly is measured by the S80/S20 ratio of people aged 65 and over. This indicator is constructed by dividing the total equivalised disposable income of the top 20 percent incomes of elderly by the total equivalised disposable income of the bottom 20 percent incomes of people aged 65 and over. A higher value of this indicator implies a higher

Table 1

Trends in social outcomes among elderly people, 1995–2010

	Income inequality among the elderly (S80/S20)				Poverty among the elderly (PL 60)			
	1995	2007	2010	Change 1995-2010	1995	2007	2010	Change 1995-2010
Austria	4.0	3.2	3.6	-0.4	20	14.0	15.2	-4.8
Belgium	4.9	3.4	3.7	-1.2	25	23.0	19.4	-5.6
Denmark	-	2.7	3.6	-	-	17.7	17.7	-
Finland	3.0	2.9	3.1	0.1	12	21.6	18.3	6.3
France	4.8	4.0	4.5	-0.3	19	13.1	10.6	-8.4
Germany	4.9	4.2	3.8	-1.1	15	16.2	14.1	-0.9
Greece	7.6	4.8	4.1	-3.5	35	22.9	21.3	-13.7
Ireland	3.9	3.4	3.9	0.0	19	28.3	10.6	-8.4
Italy	4.6	4.7	4.2	-0.4	18	21.9	16.6	-1.4
Luxembourg	4.1	3.2	3.2	-0.9	12	7.2	5.9	-6.1
Netherlands	4.2	3.2	3.1	-1.1	8	9.5	5.9	-2.1
Norway	-	2.8	2.8	-	-	14.1	12.0	-
Portugal	6.6	6.0	5.0	-1.6	38	25.5	21.0	-17.0
Sweden	-	2.8	3.1	-	-	9.9	15.5	-
United Kingdom	4.9	4.4	4.3	-0.6	32	27.6	21.4	-10.6
Mean (all countries)	4.8	3.7	3.7	-1.1	21.1	18.2	15.0	-6.1
Mean (12 countries)	5.2	4.3	4.2	-1.0	23.0	21.0	16.4	-6.6

Note: Mean for 12 countries excluding Denmark, Norway and Sweden.

Source: Eurostat SILC-database (Eurostat 2011) and own calculations.

degree of inequality among the elderly. Poverty among the elderly is measured by the percentage of people aged 65 and over who live below the poverty line of 60 percent of median equivalised (disposable) income of the total population. This poverty line of 60 percent represents the agreed upon definition of poverty in the EU. A higher value of this indicator implies a higher rate of poverty among elderly. It is worth noting that this indicator is a relative poverty indication and can therefore be seen as a representation of income inequality for the lower part of the income distribution.

Table 1 shows a general trend towards less income inequality and less poverty among the elderly across countries in the period 1995–2007.³ In 2007, average income inequality among the elderly (mean value of 12 countries) was almost 18 percent lower than in 1995, while inequality remained almost stable between 2007 and 2010. The downward trend over time is shown by the poverty rate among the elderly, which decreased by almost 29 percent on average between 1995 and 2010. If a different poverty line is applied (50 percent of equivalised median income instead of 60 percent) the result is almost the same,

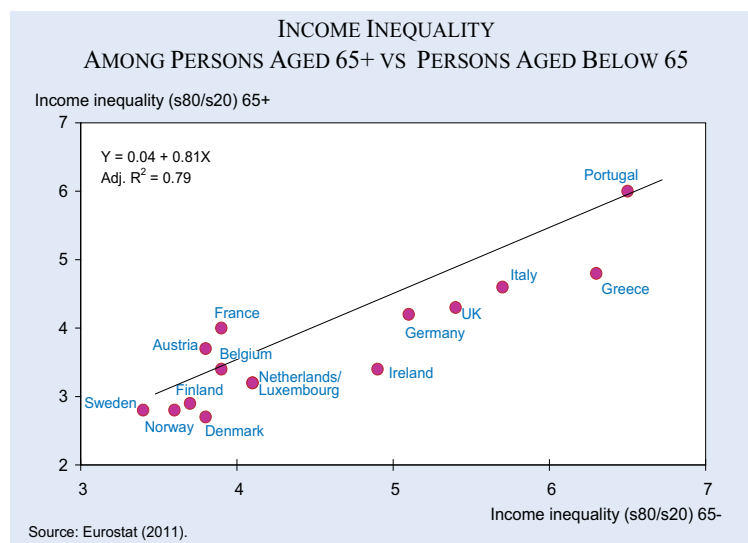
which implies that this trend is robust with respect to the poverty line. However, trends vary considerably between countries. Greece and Portugal, for example, have experienced a huge decline in poverty rates among the elderly over time. Finland and Sweden, on the other hand, have faced a relatively large increase in poverty levels.

Between 2007 and 2010 poverty rates for older people have fallen rapidly in most countries, which is remarkable because the economic crisis started in 2008. This can partly be explained by the poverty concept used (60 percent of median income): median incomes probably decreased during the crisis years, while pension incomes apparently remained relatively stable. However, several countries have implemented cuts in pension benefits since 2010. Consequently, poverty rates among the elderly may well have increased since 2010.

We proceed to analyse how income distribution among older people is related to income distribution among the working population. Figure 2 presents the income inequality among people aged 65 and above compared to income inequality among people aged below 65. It indicates that the levels of income inequality among working-age and older people are fairly closely related. Within a society, inequality

³ These Eurostat data should be interpreted with caution because there is a disruption in the time series of inequality and poverty indicators presented in Table 1; see for details: Eurostat (2005).

Figure 2



tends to be fairly comparable for people aged below 65 and above 65. Furthermore, the figure shows that, in the majority of countries, income inequality among older people is smaller than income inequality among people below the age of 65.

Regression analyses

The data presented above suggest that there is no evidence that an increasing share of private pensions leads to higher income inequality and poverty among older people. In order to take our analysis beyond these descriptive statistics, we continue with panel data regression analyses on 15 European countries for the period 1995–2007.⁴

The results of estimation are presented in Table 2. The effects of public pension expenditure as a percentage of GDP on income inequality among the elderly are negative, but not significant (model 1 and 3). Model 4 indicates that public pension expenditure as a percentage of GDP is negatively and significantly related to poverty among the elderly. In line with our expectations based on the literature on this topic, this result suggests that higher social spending on public pensions is associated with lower poverty rates among the elderly. However, the results in Model 6 indicate that there is only weak evidence for this relationship. With respect to private pension

expenditure as a percentage of GDP, the results do not indicate a positive effect of private pension expenditure on income inequality. In contrast, the negative coefficients suggest that private pension expenditure as a percentage of GDP is negatively related to income inequality among the elderly. Model 2 also indicates a negative coefficient for private pension expenditure as a percentage of total pension expenditure, but Models 3, 5 and 6 show a positive effect for the private share of pension provision, albeit not significant. This implies that higher spending on private pensions in gen-

eral, and a shift from public to private pensions in particular, are not associated with higher levels of income inequality or poverty among older people. As for graying populations, the results indicate that the effect of ageing on income inequality and poverty among the elderly is limited. It seems that the percentage of the population aged 65 and over is negatively correlated with income inequality among the elderly, while no correlation can be observed between this variable and poverty among the elderly. In short, the most important finding of this analysis is that shifts in pension provision from public to private do not seem to entail higher levels of income inequality or poverty among people aged 65 and older. This conclusion is robust for other data sources and a broad range of alternative econometric specifications (Van Vliet et al. 2012).

Alternative explanations

A number of tentative explanations are conceivable for our main finding that shifts towards relatively more private pensions are not related to higher levels of income inequality among the elderly. Besides the public/private-mix, the institutional design of the mix is also relevant (Ebbinghaus and Neugschwendt 2011). Several countries with large private pension sectors, such as Denmark and The Netherlands, have relatively generous basic pensions. This may counteract the impact of pension privatisation on poverty and inequality in a cross country analysis. Furthermore, the use of pension expenditure data at the macro-level implies some restrictions. Much

⁴ The regressions contain country- and year-fixed effects, a Prais-Winsten correction for autocorrelation and panel-corrected standard errors.

Table 2

Panel data regressions of pension expenditure and income inequality among the elderly (65+)

	Income inequality (s80/s20)			Poverty (PL 60)		
	(1)	(2)	(3)	(4)	(5)	(6)
Public pension expenditure (% GDP)	-0.13 (0.12)		-0.19 (0.13)	-1.50* (0.83)		-0.29 (1.14)
Private pension expenditure (% GDP)	-0.45*** (0.17)		-0.87** (0.42)	-1.09 (0.82)		-5.23 (3.84)
Private share (% total pension expenditure)		-3.41** (1.52)	3.58 (4.77)		2.61 (11.96)	65.32 (56.73)
Population aged 65 and over (% total)	-0.22** (0.11)	-0.22* (0.12)	-0.34*** (0.13)	-0.54 (0.80)	-0.78 (0.76)	-0.02 (0.64)
GDP per capita (/1000)			-0.09*** (0.03)			0.81** (0.34)
Constant	8.96*** (2.14)	7.62*** (1.78)	13.74*** (2.92)	42.75*** (11.58)	30.42*** (11.49)	1.38 (16.85)
Observations	135	135	135	154	154	154
Adj. R-squared	0.84	0.84	0.85	0.79	0.78	0.80
Rho	0.41	0.42	0.36	0.63	0.66	0.63

OLS regressions; unstandardised coefficients; panel-corrected standard errors in parentheses; Prais-Winsten transformation (AR (1) disturbances).

* Significant at the .10 level; ** at the .05 level; *** at the .01 level.

Each regression also includes country and year dummies (not shown here).

Countries included: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Sweden, and the United Kingdom.

Source: Income inequality (Eurostat 2011); Pension expenditure (OECD Social Expenditure Database 2010).

information can be lost in classifying pension programmes into pillars.

Another explanation for our findings could be that increases in private pension expenditure probably mostly concern young retirees, aged between 65 and 70, and are not as applicable to older retirees who retired on the basis of older rules. Hence, it may be possible that inequality among young retirees has actually increased as a result of pension privatisation, but that this is not visible in the data on the total older population. However, additional descriptive analyses of data from Eurostat (not shown here) suggest that this is not the case. The levels of income inequality and poverty among people aged 75 and above are higher and have increased more than the income inequality and poverty levels among people aged 65 and older. One explanation for our findings is possibly that the coverage of private pension plans among younger retirees has increased in recent years, and especially the coverage among younger retirees with below average incomes. Further research should shed more light on this issue.

Conclusion

In many industrialised countries, public pension systems have been reformed in order to alleviate the pressure on public finances resulting from ageing populations. This has often led to shifts in pension provision from the public to the private sector. Since private pensions are probably less redistributive than public pensions, these shifts could lead to greater income inequality among retirees. Surprisingly, empirical research shows that shifts in pension provision from the public to the private sector do not seem to entail higher levels of income inequality or poverty among people aged 65 and older.

The policy implication of this finding seems to be that the pressure of pension expenditure on public finances can be alleviated without serious consequences for income inequality or poverty among elderly people. However, great caution is required when drawing such a policy implication. As suggested before, our results could be explained by increas-

es in the coverage of private supplementary pension schemes rather than by policy reforms. A higher coverage of private programmes also causes a shift from the public to the private sector, but will probably have a different distributional impact to cutting public pension benefits. Finally, it should be noted that our analysis does not include the years after 2007. This means that we cannot assess the income effects of the pension reforms triggered by the credit crisis at the beginning of the 21st century.

The results of this study do not suggest that pension reforms in European countries have led to more income inequality and higher poverty rates among the elderly, but additional research is needed to provide deeper insights into this question.

References

- Arza, C. (2008), "Changing European Welfare: The New Distributional Principles of Pension Policy", in C. Arza and M. Kohli, eds., *Pension Reform in Europe: Politics, Policies and Outcomes*, Routledge, New York, 109–31.
- Brown, R. L. and S. G. Prus (2004), "Social Transfers and Income Inequality in Old Age: A Multinational Perspective", *North American Actuarial Journal* 8 (4), 30–36.
- Ebbinghaus B. and J. Neugschwender (2011), "The Public-Private Pension Mix and Old Age Income Inequality in Europe", in B. Ebbinghaus, eds., *The Varieties of Pension Governance: Pension Privatization in Europe*, Oxford University Press, Oxford, 384–422.
- Eurostat (2005), "The Continuity of Indicators During the Transition Between ECHP and EU-SILC", *Working Paper and Studies*, Brussels.
- Eurostat (2011), SILC-database, http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/introduction.
- Fukawa, T. (2006), "Sustainable Structure of the Japanese Public Pension System Viewed from a Germany-Japan Comparison", *The Japanese Journal of Social Security Policy* 6 (1), 131–43.
- Goudswaard, K. and K. Caminada (2010), "The Redistributive Effect of Public and Private Social Programmes: A Cross-country Empirical Analysis", *International Social Security Review* 63 (1), 1–19.
- Hughes, G. and J. Stewart (2004), *Reforming Pensions in Europe: Evolution of Pension Financing and Sources of Retirement Income*, Edward Elgar, Cheltenham.
- Milligan, K. (2008), "The Evolution of Elderly Poverty in Canada", *Canadian Public Policy* 34 (s1), 79–94.
- OECD (2009), *Pensions at a Glance 2009: Retirement-Income Systems in OECD Countries*, OECD Publishing, Paris.
- OECD (2010), Social Expenditure Database 1980–2007, http://www.oecd.org/document/9/0,3343,en_2649_34637_38141385_1_1_1_1,00.html.
- Orenstein, M. A. (2011), "Pension Privatization in Crisis: Death or Rebirth of a Global Policy Trend?", *International Social Security Review* 64 (3), 65–80.
- Oshio, T. and S. Shimizutani (2005), "The Impact of Public Pension Benefits on Income and Poverty of the Elderly in Japan", *The Japanese Journal of Social Security Policy* 4 (2), 54–66.
- Schirle, T. (2009), "Income Inequality among Seniors in Canada: The Role of Women's Labour Market Experience", *CLSRN Working Paper* no. 10.
- Smeeding, T. M. and J. Williamson (2001), "Income Maintenance in Old Age: What Can Be Learned from Cross-national Comparisons", *Luxembourg Income Study Working Paper* no. 263.
- Van Vliet, O., J. Been, K. Caminada and K. Goudswaard (2012), "Pension Reform and Income Inequality among Older People in 15 European Countries", *International Journal of Social Welfare* 21 (4s1), 8–21.
- Wang, C., K. Caminada and K. Goudswaard (2012), "The Redistributive Effect of Social Transfer Programs and Taxes: A Decomposition across Countries", *International Social Security Review* 65 (3), 27–48.
- Weller, C. E. (2004), "The Future of Public Pensions in the OECD", *Cambridge Journal of Economics* 28 (4), 489–504.
- Wu, K. (2005), "How Social Security Keeps Older Persons Out of Poverty across Developed Countries", *Luxembourg Income Study Working Paper* no. 410.
- Yoo, K.-Y. and A. de Serres (2004), "Tax Treatment of Private Pension Savings in OECD Countries", *OECD Economic Studies* 39 (2), 73–110.