Pension Policy in EU25 and its Possible Impact on Elderly Poverty

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Abstract

This paper reviews changes in pension policies in EU countries between 1995 and 2005 and describes how they might affect risk of poverty for future pensioner populations. The pension landscape in Europe has changed considerably in the past decade and the paper highlights commonalities as well as differences in pension reforms across these countries. A common trend is that the retirement incomes drawn from the public pension systems are on the decline, the changes are likely to shift more risks towards individuals, and there are fewer possibilities of redistribution in favour of the lower income individuals. The paper includes exploratory projections of how the risk of elderly poverty might evolve in the future. The countries where the benefit ratio is set to decline significantly, as expected, would see at-risk-poverty rates increase quite substantially, especially during the period 2025-2050, when the bulk of the decline is expected. This analysis points towards the importance of a more comprehensive assessment of the reforms, in particular in their impact on vulnerable groups (such as women and disabled people with disruptive work history) and in the clarity of the signals they give to individuals in extending their working career if they want to avoid greater risks of poverty during retirement.

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1. Introduction and background

This paper reviews the most relevant changes in the pensions policy in EU25 and provides a description of how they might affect the risk of poverty for the future elderly populations. The analyses shed light on the expected evolution of poverty among the elderly for coming decades. These insights will be useful to identify any policy responses that might be necessary (if feasible) in order to meet the objective of not only sustainability but also adequacy of pensions in the 25 Member States of the European Union.

The paper provides a systematic description of pension reforms that have been implemented in the period 1995 – 2005. It identifies specific elements in pensions policy reform such as whether there were any changes in accrual rates and in indexation; and whether there are provisions of additional financial instruments such as personal accounts. It then assesses how they are likely to affect the incomes of future generations of pensioners. This discussion provides pointers to the way in which the poverty of the elderly population is likely to be affected in the countries in question.

The paper does not incluude the proposals of the UK Pensions Commission which were still under discussion at the time of writing but it does provide a comparative context against which to set them.

Most of our work relies on the secondary analysis of published material. We cite and critically evaluate studies that have analysed the likely impact of the relevant policy changes. We draw on the latest projections provided by the Commission in their various studies. We also looked for information from the official sources about the rationale of the policy changes and what has been perceived to be the likely impact of these policy changes. In the last section of the paper we model the risks of poverty for the elderly population in the absence of other policy or behavioural responses.

The rest of this paper is organised as follows. Section 2 gives a broad overview of changes in the pensions policy in the 25 Member States of the EU during the last decade or so, and what might be possible effects on these changes on pensioners' incomes and poverty.[1] Section 3 offers a thought experiment, in which we generate projections of the risk of elderly poverty in 2025 and 2050 for a selected set of countries. Section 4 concludes.

[1] Zaidi and Grech (2006) offers further quantitative evidence on the impact of pension reforms on pension benefits in EU25.

2. Pension Reforms in EU countries and their possible impact

2.1 Pension policy in EU countries: An overview

- **The pensions landscape in Europe is continuously changing and the systems that nowadays face many young workers in EU countries are significantly different from those present just ten years ago. In some cases the pension reforms have reversed dramatically the expected increase in spending on public pensions.[2] For the convenience of analyses presented here, the reforms that have taken place can be classified into two broad sets: parametric and systemic reforms.**

The *parametric reforms* have maintained unchanged the pay-as-you-go (PAYG) nature of existing pension systems but made substantial changes to their underlying rules – such as those on the accrual of pension entitlements, the age at which benefits can be received, and the contribution periods required.[3] Other countries have gone even further and opted for *systemic reforms* i.e. moving away from the PAYG defined-benefit (DB) structure and adopting new defined-contribution (DC) type schemes. Here one can discern two main types of reforms: World-Bank inspired multi-pillar reforms that set up systems of personal accounts (e.g. Slovak Republic, Estonia and Hungary) and the adoption of non-financial defined contribution (NDC) systems (e.g. Sweden, Italy, Poland and Latvia).

Note that the distinction between 'parametric' and 'systemic' reforms principally reflects whether the country in question maintained its PAYG structure or not. This rule has its shortcomings. For instance, the two biggest countries in Europe, Germany and France, have not shifted totally to NDC (and thus they are categorised as countries which had parametric reforms), but they have introduced features that mimic the rules of a Notional Defined Contribution (NDC) model. France has introduced a link between the number of contribution years and life expectancy while Germany has adopted a sustainability factor that links the level of pension benefits to the dependency ratio. In the same vein, Austria has also significantly modified its public

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2 Over the next 50 years, public spending on pensions is expected to decline in Estonia, Latvia, Malta, Austria and Poland, and remain relatively unchanged in Italy and Sweden. When one compares the projections of pension spending made in 2001 by the Economic Policy Committee and the Commission with those made in 2006, one finds that reforms made in just 5 years have managed to cut back more than a third of the projected impact of ageing. This downward revision was achieved despite the fact that that the new projections, presented in Annex 1 are based on assumptions of a sharper acceleration in ageing.

3 The impact of parametric reforms can be quite considerable. For instance, whereas in 2001, Germany was forecasting an increase of 5.5 percentage points in spending over the next half century, now it expects an increase of just 1.7 percentage points.

pension plans and could be said to now have a personal notional defined benefit account system.[4]

- **The recent period of pensions reforms has been driven mainly by growing concern about the economic impact of ageing and a need for fiscal restraint. A common trend is for public pension benefits to decline. The average public pension benefit ratio has dropped in the majority of the countries. We define this as the ratio of an average public pension to the average output per worker. Moreover systemic reforms have changed the nature of pension provision from defined benefit type provisions to defined contribution type provisions.[5] In general, but with exceptions, this type of change is likely to shift more risks towards individuals concerned (of the same generation), with a more restrictive redistribution in favour of the lower income individuals.**

A recent EPC report on spending on the elderly indicated that the average public pension benefit ratio across the EU25 would drop from 22% in 2004 to 17% in 2050 – a decline of more than a fifth.[6] The EU Commission's synthesis report on pensions also confirms that theoretical replacement ratios will drop significantly.[7] The theoretical replacement rates are the level of pensions as a percentage of previous individual earnings at the moment of take-up of pensions, calculated for a hypothetical worker with a given earnings and career profile (in this case a male worker who works full-time for 40 years – with no career breaks - and always earns 100% of average earnings). The decline in the theoretical replacement rate are significantly more pronounced when looking at systemic reforms. For instance, the replacement ratio in Sweden is set to drop by nearly a fifth over the period 2004 to 2050. Multi-pillar reforms have exposed individuals to market-return risk and investment-choice risk (e.g. in Hungary the returns achieved up to now, if they persist, would mean that benefits under the new system would be lower than under the old system).

A greater linking of benefits to contributions has also had negative implications for people with lower lifetime earnings, such as women. This linking has reduced the previous redistributive elements that were common in the majority of the public

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4 For more details, see Knell (2005).

5 A pension scheme where the pension benefits are related to the member's pensionable earnings (either at retirement or during earlier working life) and number of contributory or credited years is known as a *defined benefit* scheme; and a pension scheme in which the pension benefits are linked to the fund value – this being dependent upon the contributions made into the fund, retirement age and also investment returns – is known as a *defined contribution* scheme. We will refer to them as DB and DC schemes, respectively.

6 See Economic Policy Committee (2006).

7 See European Commission (2006).

pension systems. Furthermore the high administrative costs of personal accounts are relatively more burdensome on lower income persons, who usually also do not have the level of financial education needed to make the right investment choices.

Note that in view of rising longevity, the total cumulative pension wealth paid out to pensioners may still be at least as generous after the reforms as before the reforms. Thus, the overall impact might on balance be neutral or even resulting in more generous sum of pensions over one's lifetime. However, for the purpose of the current project, our interest lies in how annual pension incomes may be affected by the reforms, mainly because the poverty risk calculations are based on pensioners' annual incomes. Thus, our references to how the generosity of the pension systems have changed are viewed in terms of how annual pension benefits will be changed by the pensions reforms.

Moreover, it can be expected that the policy reforms will be accompanied by behavioural changes in individual agents (such as a greater propensity to save, and possibly an extension of one's working life). Without denying that there will be counteracting behavioural changes by individuals, we review the possible impact of pensions reform in a steady state scenario (i.e. if the generosity of pension benefits is on the decline, it is likely to increase risk of poverty for the future pensioners). Where necessary, we do refer to how behavioural changes of certain sort may reduce or enhance one's chances of facing the risk of poverty in old age, and also where a switch away from public pensions may generate enough private pensions to mitigate the impact of a reduction in the generosity of public pensions.

2.2 Parametric Reforms: Scope and possible impact

- **Most countries in the EU25 have opted to enact parametric reforms rather than systemic reforms. However, this does not necessarily mean that the former have a smaller impact on pensioner incomes than the latter. The parametric reforms are different in that the change in the risk-shouldering aspects of the pension arrangement (for the current generation) is less than that observed in systemic reforms.**

The pension reform process met with considerable opposition. Nevertheless given developments such as European Monetary Union and growing international competition, policy makers have persisted and in many countries have succeeded in putting in place major pieces of reform. However, in the majority of cases, reformers have not pushed for a complete overhaul of their system, but have gone for parametric reforms. The reason for this was mostly the fact that shifts to fully funded systems were seen as financially unsustainable or presented too complex a challenge. Yet, though parametric reforms may seem less drastic than systemic ones, in practice their impact on the fiscal sustainability and pensioner welfare can be equally impressive, or even more so in some instances. For example, while the net replacement ratio is expected to decline by 4% in Hungary, which has gone for systemic reform, that in France is set to fall by 21%. The main difference between parametric and systemic reform lies not on the financial impact on pensioners (or contributors) but in the

sharing of risk between the current generation and future ones or the State (which becomes a custodian of the future generations in this respect).

Parametric reforms, in fact, do not change public pension systems from a DB to a DC set-up. This has several important implications, such as the fact that longevity risk is still borne by the pension provider rather than the pensioner. Moreover redistribution is still possible under a DB system, something that is relatively impossible to achieve under a pure DC framework.

- **Parametric reforms may affect either the contribution side or the benefit side. Almost all countries in the EU25 have undertaken parametric reforms during the last decade. In some cases this preceded systemic reforms.**

On the contribution side, countries may change the percentage of income that needs to be paid or the income thresholds that apply. They may change the number of contributions required to qualify for a pension, affecting the effective retirement age. The state pension age, or the minimum age at which a pension starts to be paid out, can also be modified, a measure that affects both revenue and expenditure at the same time. On the benefit side, an important parametric change is any change in the indexation or uprating of pension benefits. In the same vein, Governments may change the benefit formula by modifying the accrual rates or altering the pensionable earnings. Related to this, countries have also in many cases tried to rollback the early retirement schemes that they had introduced earlier and also sought to extend working lives by offering benefits to older people who continued to work or defer their pensions.

Documenting all parametric changes that have taken place in European public pensions during the last decade is a hefty task. However there are tools that enable this kind of analysis. Of particular importance in this regard is the 'MISSOC Comparative Tables' compiled since 1990 by the Mutual Information System on Social Protection (2006), which is restricted to just Member States of the European Union. This publication, along with other EC and OECD publications, enable us to get a concise snapshot of the major reforms in the rules and regulations underlying the old-age pensions in the 25 Member States of the European Union.

Table 1 below summarises the main parametric reforms that have taken place, or are gradually being introduced, in the PAYG DB public pension schemes of the current Member States of the European Union. The parametric reforms are sub-divided into 5 categories. In some cases, some countries that have made systemic reforms are also listed in the Table, e.g. Italy. This is because in these countries the old schemes still apply to older cohorts of workers, and Governments have sought to reform these also. In general the parametric reforms have been driven by the objective of increasing revenue or decreasing generosity in terms of annual pensions benefits paid out.

Table 1: Countries that made parametric reforms between 1995/96 and 2005

Retirement Age	Contribution Rate	Contribution Requirement	Benefit Indexation	Pension Formula
Austria	Czech Rep.	Austria	Austria	Austria
Belgium	Denmark	Belgium	Germany	Belgium
Cyprus	Finland	Czech Rep.	Greece	Czech Rep.
Czech Rep.	Germany	Denmark	Hungary	Finland
Denmark	Hungary	Finland	Spain	France
Estonia	Ireland	France	Slovak Rep.	Greece
Finland	Italy	Germany		Hungary
Germany	Latvia	Ireland		Italy
Greece	Lithuania	Italy		France
Hungary	Malta	Slovak Rep.		Luxembourg
Italy	Netherlands	Slovenia		Portugal
Latvia	Portugal	Spain		Slovak Rep.
Lithuania	Slovak Rep.			Slovenia
Portugal	U.K.			Spain
Slovak Rep.				U.K.
U.K.				

Source: Based on analysis of 'Social Programmes throughout the World', various editions, and 'MISSOC Tables', various years; International Social Security Association (2006).

a) Retirement age

As can be seen from Table 1, the most frequent reform (undertaken in 16 countries) has been changing the retirement age. This reform, though still quite politically difficult to push forward, tends to be more easily justifiable than reductions in generosity, as it can be linked directly to the increase in longevity. Moreover in many cases, the reform has just involved the equalisation of the legal retirement age for men and women.

Only Eastern European New Member State countries (Czech Republic, Estonia, Hungary, Latvia, Slovak Republic, Lithuania) and Italy have effectively increased the retirement age for both genders, while Denmark actually lowered it from 67 to 65.[8] However, the approaching of the retirement of the Baby Boom generation is increasing the willingness of Governments to actually push for this kind of change. The coalition Government in Germany intends to raise the state pension age from 65 to 67. Similarly, independent Government-appointed pension commissions have recently recommended the extension of the full pension retirement age in both the UK and Malta. The UK Government has recently accepted such a move (DWP, 2006).

[8] A Government-appointed commission has, however, recently proposed for it to go back up to 66.

This reform increases both the revenues of Government, by adding more years of contributions, while it decreases the longevity risk borne by the State and the amount it needs to pay to contributors when they eventually retire.

b) Changes to the contribution side

The second most common reform during this decade has been modifying the contribution rate. Again while politically difficult, this reform can be justified as a means to bolster the finances of the state in advance of the demographic transition. Given the PAYG-nature of public schemes, this reform, on its own, does not necessarily reduce government spending. In some cases, such as Ireland and Finland, this reform has been accompanied by the setting-up of reserve funds that will be used to finance the increase in spending that is projected in future years. In this way, countries are able to conduct tax smoothing, increasing contribution rates only gradually over time and by a smaller amount as extra funds collected before the system goes in deficit would have earned interest. However, globalisation and the increased competition from lower-cost countries have reduced the willingness of Governments to go for this option. Some countries, e.g., the Netherlands and Sweden have even set a cap on contributions.

Another measure that impacts on both revenues and expenditures is changing the contribution requirements to be eligible for pension benefits. One of the most common changes across Europe has been a scaling back of the early retirement schemes that had been put in place in the 1970s and 1980s. Contribution requirements for early retirement, or deductions for taking up pensions before the legal retirement age, have risen in Belgium, Denmark, Germany, France, Italy, Austria, Finland, the Czech and the Slovak Republics, Spain and Slovenia. More crucially, the period of minimum contributions needed to qualify for the maximum pension has been increased or is being raised in several countries, like Austria, Belgium, France and Italy. France has also introduced a significant reform under which after 2009, 'the number of contribution years will increase following the increase in life expectancy through a rule keeping constant the ratio of the number of contribution years and the number of years in pension to the level of 1.79 as in 2003'.[9]

This reform is interesting in that it introduces a form of automatic stabiliser in the public DB scheme that reduces the risk posed by longevity. The merit of this approach is that the individual, here, can still manage to qualify for a decent pension by working longer. The reforms based on NDC or personal accounts also provide this opportunity to the individuals to undertake remedial action of this sort to qualify for more generous pension benefits.

[9] See Carone (2005: 18).

c) Changes on the benefit side

On the benefit side, more countries moved away from uprating of current pensions in line with earnings. Most EU countries now uprate benefits in line with prices – implying that over time pensioner benefits will fall in relation to general incomes and thus pensioners will lose out their relative position in their society.

The changes in indexation relate to the benefit side and, unless people are well aware of their implications, they could end up having pension benefits that are lower than what they were expecting without any possibility of taking remedial action. As can be seen, there have only been a handful of countries that have changed the way they index benefits after retirement. However, this may be somewhat deceptive, as most countries had already effected these changes at an earlier date. Contrary to the commonly held perception, most pension systems in Europe nowadays are not characterised by earnings uprating but rather by price uprating. This implies that replacement ratios of pensions gradually decline with time, as the income of pensioners grows at a much slower rate (inflation) than that of the rest of the population (earnings). This results in a continuous decline in the relative position of the elderly (especially the oldest old).

The countries shown in the Table represent the few who had still earnings uprating in 1995, but since have moved away. Austria and Germany at first moved towards linking pensions to net earnings, so that the burden of any increases in social security contributions would be more fairly shared between workers and pensioners. Now they have both moved to an even less generous indexation: Austria moved to price uprating and Germany has introduced the 'sustainability factor' to adjust pension benefit indexation. Other countries, like Hungary and the Slovak Republic, went for the Swiss formula (50% price uprating and 50% earnings uprating) and in this way reduced what were previously wage-indexed pensions.

The United Kingdom is proposing to move in the opposite direction having adopted price linking in the early 1980s. As we shall see later this is because the basic state pension has fallen so far below average earnings that the great majority of future pensioners would have become dependent on means tested pensions removing much of their incentive to belong to private funded schemes.

- **Pension formulas have tended to shift towards a lowering of the income to be replaced.**

Changes in the pension benefit formula are rather more complex reforms, especially in terms of their implications being fully understood by the average citizen. There are a wide variety of pension benefit formulae and thus it is hard to synthesise the main changes. However, broadly speaking, the formulae can be divided into two parts – accrual of entitlements and pensionable salary. The accrual side determines how much of the pensionable salary, the pension benefit will be replacing. Thus, for instance, the scheme could be based on having an accrual of 2% of the final salary for every year of

contributions. The other component, pensionable salary, amounts to the representative salary to which the earnings-related scheme is linked.

Typically DB schemes (particularly in the private sector) have accrual schedules that are related linearly to the number of years in the system (i.e. same accrual rates for each year of contribution, irrespective of age and years already contributed for). In order to extend working lives, or alternatively to discourage early retirement, in recent years some Governments, such as Finland and Greece, have modified their accrual rates and tried to give higher entitlement to those who work after certain ages, or else have sought to make people work longer by reducing accrual rates. In other cases, the accrual rate may differ on the basis of earnings (Czech Republic and Portugal have higher accrual rates on lower earnings, and lower accrual on higher earnings; France and Sweden has higher accrual rates on higher earnings). There are also differences in accrual rates across sectors (e.g. Fire-fighters' pension schemes in the UK, and the pension schemes for police in Greece, have much higher accrual rates compared to other sectors in the economy; the French pension system has separate accrual regimes for executives and nonexecutives[10]).

A more readily understandable parametric reform involves changing the pensionable salary. Most countries used to have schemes that limited the determination of this salary to the final few years of a career, a period when someone would be near the top of his earnings history. However, in recent years, there has been a considerable lengthening of this period, so that the wage that is replaced is in many cases no longer very representative of the final salary of the person before he retires. Austria, for example, has moved away from using the 15 best years to the income earned during 40 to 45 years of working life. Most notably, this kind of reform is likely to harm more those who had steep earnings career, and will be relatively beneficial to those on low-income trajectory. Other countries, like Portugal and Hungary, have also moved towards calculating the pensionable income as the average lifetime salary, while others, such as France, have just increased this period to be more in line with the required contribution periods. A new innovation made by Germany is the introduction of a 'sustainability factor' which links annual pension indexing to changes in the ratio of pensioners to workers supporting the system. German pensions are tied to a basic pension-point value component, which, in turn, is indexed to annual net wage growth. This pension-point value component is adjusted in line with the sustainability factor, so as to lower pension payouts for all German retirees as the pensioner-to-worker ratio increases over time. Thus pension payments are expected to be on the decline, which in turn is likely to raise the risk of elderly falling into poverty.

10 See Legros (2006).

2.3 Systemic reforms and their possible impact

In essence there have been two broad types of systemic reforms – those inspired by the World-Bank multi-pillar model and those setting up NDC schemes. Though in both cases, the main difference with DB public schemes is that the structure of determination of pension benefits changes from DB to DC, there are some major differences between the two strands of reforms and their impact on pensioners' incomes is also likely to be quite distinct.

Table 2: Countries that have made systemic reforms

NDC	Funded Second tier of mandatory scheme	NDC First tier of mandatory scheme
Italy	Estonia	Sweden
	Hungary	Latvia
	Latvia	Poland
	Lithuania (voluntary)	
	Poland	
	Slovak Rep.	
	Slovenia (supplementary)	
	Sweden	

Source: Based on analysis of European Commission (2006).

a) World-Bank Multi-pillar reforms

- **Prior to accession, a number of eastern European countries opted to go for multi-pillar pension systems, often after assistance from the World Bank. These reforms, though they differ from that in Chile, were inspired by similar motives of moving towards a funded system and increasing the share in the economy of the private pensions. The systems face serious challenges (quite similar to those faced by Chile), with major issues surrounding coverage, high fiscal costs of transition and possible negative impacts on certain groups (such as women).**

The review commissioned by the World Bank on its assistance on pension reform reports that eleven of 24 Bank-supported European and Central Asian countries implemented multi-pillar reforms.[11] Poland, Estonia, Latvia, the Slovak Republic, Lithuania and Hungary all implemented multi-pillar reforms before they joined the EU (and three other applicant countries, Romania, Bulgaria and Croatia have also

[11] 13 countries (of which only Slovenia is an EU Member State) also received small loans for parametric reforms.

gone down this path).[12] However reforms in this region differ from those in Latin America, as multi-pillar systems in Europe tend to include a fairly substantial contribution-based PAYG pillar, for instance Hungary and Latvia. Moreover reforms in European countries tended to be influenced by the NDC reforms of Sweden and Italy (particularly in cases when Sweden was also a donor country) and in some cases, namely Poland and Latvia, the first pillar was converted from PAYG to NDC.

When comparing Latin American and Central and Eastern European countries (CEECs), one notes two main differences - coverage and demographics. CEECs have an older population structure, but life expectancy is lower, while participation tended to be universal (a residue of the communist days). However the financial situation tended to be very similar, as the transition to market systems resulted in the creation of large informal sectors and the rise of tax evasion, while large unemployment and redundancies from privatised firms resulted in a worsening of the ratio of contributors to beneficiaries. In Poland and Hungary the number of contributors declined by 15% and 25%, respectively, and by 8% in the Czech Republic. Early retirement, in part, led to an increase in the number of pensioners by 10% in the Czech Republic, 20% in Hungary and a massive 50% in Poland.[13] But the desire to join the EU (and therefore the implied adoption of the Maastricht criteria) meant that a full transition to a funded system was not possible as the transition costs would have been too high. Thus countries tended to go for the World Bank multi-pillar model.

Setting up systems of individual accounts was seen as an effective means to boost financial sector development, help privatisation and spread the values of the market economy among the population.[14] However several studies[15] have noted that in many countries the preconditions for administering the systems were not in place and that there were serious implementation problems. In Hungary and Poland, the number of workers shifting to private accounts exceeded expectations and reduced the contributions to the PAYG pillar, reducing its sustainability. As in Chile, administrative expenses were relatively high and the industry had to consolidate in a way that a few companies started to dominate it. Markets for annuities proved to be difficult to set up; while pension funds ended up investing mainly in Government paper (which coupled with the high administrative costs implied by their decentralised set-up reduced the potential benefits for contributors). Moreover in some countries, e.g. Poland, the collection and the management of contribution records proved to be very problematic and were affected by administrative and technical hitches. In mid-2003 the overall rate of inactive accounts (accounts created that do not have a single

12 Sweden, an existing Member State, also introduced a mandatory DC funded pillar, but this is minor contrasted to its main pillar.

13 See Fultz and Steinhilber (2003).

14 See Wehlau and Sommer (2004).

15 See Kritzer (2002).

contributions paid) was 18% of total accounts.[16] The impact of these systems on women has also been little analysed, while the problems associated with coverage in the informal sector remain. It may still be too early to assess, but if the personal account systems of the CEECs evolves like that of Chile, a substantial proportion of individuals may opt to contribute just enough to qualify for the minimum pension guarantees (with the associated risks of poverty and political pressure on Governments to improve guarantees).[17]

- **In many cases the multi-pillar reforms are still too new for their long-term impacts to be evident. Yet, in some of the countries that went through the reform earlier than others, e.g. Hungary, there have been studies that have yielded some interesting insights.**

A working paper published by the Hungarian Central Bank[18] notes that 'the pension system, in its present form, is unsustainable with net implicit public liabilities in the system around 240% of GDP'. More crucially it notes that 'the returns recorded so far in the private pension funds fall short of expectations and, on the condition that these low returns persist, the second pillar is projected to provide annuities that do not make up for the reduction in benefits received from the public pillar'. The Hungarian case is also interesting in that it shows that a move to full funding does not automatically result in sustainability. After the reform several parametric changes contributed to reverse any improvements in sustainability. The net implicit liabilities of the system had been just 60% of GDP prior to the reform, but a cut in contribution rates, the evening out of benefits between pensioners who retired in different years and the introduction of a 13th month pension contributed to boost the burden of the system.

- **Shifting to a pure DC structure increases risks shouldered by individual contributors (instead of the State, or the employer), and it reduces the redistributive element present in public DB pension schemes. Given gender differentials in employment, it also tends to lead to greater gender inequality.**

Personal accounts reforms introduce two elements of risk to pensioner incomes – namely *investment risk* and *administrative charges risk*, and these may lead benefits to be significantly different from those available under the old regime of public DB-type pension schemes. The move to DC also implied that contributions and benefits of an individual became directly linked (more than was the case in the DB system) and this

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16 For a full assessment of the myriad problems faced by CEECs, see Fultz and Stanovnik (2004).

17 For more details, see Mitchell (2005). The average Chilean worker pays into the system about half of the time. Three-quarters of those not making contributions are women.

18 See Orban and Palotai (2005: 5).

reduces the possibilities of affecting redistribution. Thus, such a move was negative for lower income individuals, as progressive elements in pension formulae were removed or decreased, cases in point being Hungary (1998) and Poland (1992 and 1999). Moreover the shift from DB to DC means that longevity risk is shifted squarely to the shoulders of individual contributors of the same generation (and not borne by the State). Taken together all these measures tend to disadvantage those with low lifetime earnings. To further complicate matters, though countries have tended to legislate that gender-neutral mortality tables are utilised, there have been practical problems of implementing these annuity regulations with insurance companies reluctant to offer them and the market proving difficult to kick-start. Thus, the net outcome of these reforms increases the risk that women will continue to have lower annual pension incomes.

- **A further complication arises when individuals are given the option to shift voluntarily into the personal accounts system. Evidence from Poland and Hungary indicates that many opted to shift without having recourse to enough information.**

In many cases, people had the option of staying within the old public DB-type PAYG system or move to the personal accounts pillar. Similar to what happened in the UK with contracting-out of State's earnings related pensions, there is evidence that in many cases people who switched may have become less well off as a result. A World Bank study carried out in 2000[19] shows that surveys in Poland from the end of 1999 showed that 'most people felt they were well informed and that information on the pension reform was readily available', but then surveys often showed 'that the knowledge of the pension system was limited to slogans rather than a deep understanding' (Chlon-Dominczak 2000, pp. 60). Moreover while there are indications of rational switching, there is 'some evidence that choices made were not based on a detailed understanding of the new system'. The study also notes that 'a significant proportion of people simply joined the pension fund of the first agent they came across'.

Orban and Palotai (2005) in their study on the Hungarian system remark that 'it is a puzzle to researchers why so many people joined the multi-pillar system voluntarily, renouncing 25% of their pension claims from the PAYG after having contributed to the pure PAYG for a number of years' (Orban and Palotai 2005: 12). They explain it 'by the fact that individuals perceived the market risk involved in accumulating savings in a pension fund to be lower than the policy risk of participating in a pure PAYG with very low credibility and an overall negative image'. Moreover they note that 'this negative image was exploited by large-scale mis-selling and campaign from the part of pension funds, whose agents pressed and often misled customers in order to recruit more members' (Orban and Palotai 2005: 12). There is also the widespread

[19] See Chlon-Dominczak (2000).

belief that Government will step in at some stage and compensate pensioners for a very unfavourable outcome.

- **The high administrative costs of the multi-pillar system are more burdensome to lower-income persons.**

Besides exposing contributors to investment return risk, the main negative element of the multi-pillar system is that it is based on a decentralised approach that implies a very expensive administrative cost structure. This is particularly negative on low-income earners who have very small funds. Moreover the decentralised approach gives rise to competition that is not really based on the effective rate of return, but rather on marketing campaigns and large sales forces. This, not only impacts badly on the low income contributors who usually are the least able to evaluate critically these campaigns, and thus end up making the wrong choices, but also raises the costs of the system without leading to any benefit to participants. Whitehouse (2000) reports that countries with relatively similar systems based on individual accounts with individual choice of provider have average charges that vary from less than 15% to more than 30%.[20] This implies that for adequate replacement ratios to be achieved, contribution rates need to be relatively high, and since saving is a luxury good, this impacts more on low income workers than on high income ones. By contrast, in the state DB schemes, administrative costs were fairly small and were financed out of general taxation.

b) NDC schemes

- **The NDC schemes, though still based on the DC method of determining benefits, differ significantly from the personal accounts systems. They tend to be less risky for individuals, especially for those on lower incomes, since the return on income is the same for all, and less costly as funds do not need to be invested, and there are no marketing and investment advice costs. By default, the longevity risk is faced by the individual contributors of the same generation, thus the current generation of workers will be faced with greater income risks compared to the situation in which they had contributed to the old system.**

Whereas the personal account systems are based on investing funds in the financial market, the NDC systems involve just *notional* accounts and thus the investment risk faced by individuals is very different. The rate of return faced under an NDC is centrally determined and reflects the formula chosen, whereas under the personal accounts system the return depends on the investment choices made by individuals and the performance and stability of financial markets. This has significant implications in that all people face the same risks on return under the NDC scheme, and thus there is no income inequality that results because of better investment choices, something that could possibly be correlated to the income level of an

[20] See Whitehouse (2000).

individual. NDC schemes thus do not place lower income individuals at a relative disadvantage arising from their relatively lower level of financial education and experience in investment choice.

That said NDC schemes also have a form of 'investment' risk for contributors. This relates to any fluctuations in the notional rate of return that differs from the return under the PAYG DB scheme, which amounted to the annual accrual of entitlements. The NDC schemes, in fact, attempt to make the PAYG schemes automatically stabilising so that the 'assets' and 'liabilities' of the system balance out. For instance, in Sweden through the operation of the 'automatic balance mechanism', Government reviews annually the system and if the calculation reveals an unfunded liability, the notional account interest (set at the growth of average wages) and the indexing of annuities is reduced. Thus changes in the size of the contributing labour force are reflected in the rate of return earned on funds. With the NDC system, the financial risk of changing economic and demographic factors is shifted from the State to current and future pensioners. Besides this, the system also adjusts for longevity increases through changes in the annuity divisor, which converts the notional account upon retirement into pension benefits. As retirees' life span increases, the monthly benefit available to individuals declines unless they delay retirement. Capretta (2006: 3) reports for the Swedish system that "based on mid-range demographic and economic assumptions, the Government projects that the life span adjustment will cut average monthly benefits for those continuing to retire at age 65 by 14% by 2055". However, this may be compensated (albeit only partly) by behavioural adjustments (upwards) in the age at which people retire when faced with the prospect of low pensions benefits and rising life expectancy. Moreover, as mentioned by Capretta, "the Government expects the automatic balance mechanism to be triggered only 'a few times' over the next 15 years, thus only modestly cutting the rate of return applied to the notional accounts" (Franco and Sartor 2006: 475).

- **While NDC lead to a securitisation of pension claims for individuals, and so may seem to reduce flexibility for Governments to cut benefits in the future, in practice the move itself has reduced the cost of future benefits.**

There is concern that the projections used by the Swedish Government may be optimistic (the current level of fertility and migration together with 2% permanent real wage growth) and the automatic balance mechanism will be used much more frequently than expected. In this case, the politically acceptability of the NDC system may be put under threat as its transparency means that individuals will be able to compare the rate of return on their notional accounts with that on market instruments (and ignoring the question of risk, charges, etc). This will put pressure on Governments to sustain the system by shouldering part of the change in economic and demographic factors itself. Furthermore as noted in Knell (2005)[21] the NDC system leads to a securitisation of pension claims, making individual benefit levels difficult to

[21] See Knell (2005).

modify whereas under the DB systems where benefits were determined at the end of the career, it was easier for Governments to fiddle with the formula and lower benefits. However, the shift to NDC in itself, due to move towards lifetime averaging and the shift of longevity risk, may lead to such a reduction in benefits that Governments may be willing to face these additional risks. For instance, Franco and Sartor (2006)[22] reports that in the Italian system "under the baseline scenario, the average pension earned at the age of 60 is reduced by 34 percent…the reduction in benefits reaches 50 percent if the lifetime stream of pension benefits is taken into account". These reductions in benefits, if not compensated by additional contributions, are likely to increase the risk of elderly poverty.

- **Costs to administer NDCs are lower than multi-pillar and so the incomes accrued under these systems are higher than under personal accounts.**

Another major difference of the NDC schemes is that they are less expensive to administer than multi-pillar pension systems. This is not to say that multi-pillar systems cannot be organised in a way that reduces the administrative charges faced by contributors. The Swedish pension systems also includes a relatively small personal account component (2.5 percentage points out of the total 18.5% contribution paid) which due to its centralised organisation faces significantly lower costs than the multi-pillar systems of CEECs, indicating that this type of risk can be reduced through reforms that decrease decentralisation.[23] The system of personal accounts proposed by the Pensions Commission in the UK presents another example of how system design could focus on minimising administration, collection and selling costs. Nevertheless the personal account systems will always involve more administrative costs as they involve the actual investment of funds, and thus even if contributors are denied any rights of switching providers or given very little choice (both factors that could reduce administrative charges substantially) there would be the costs to influence investments, track them and administer them. Given that these are fixed costs, in a system of personal accounts these costs tend to disadvantage the lower income groups.

- **The use of gender-neutral annuity will contribute to reducing gender inequality (when total cumulative pension wealth is taken into account). As for annual incomes, both men and women will experience the decline in the benefit income that come about due to longevity risk passed onto contributors of the same generation.**

The adoption of the gender-neutral annuity is arguably the most redistributive element of a DC-type system. However, this is true only when one looks at the overall

22 Franco and Sartor (2006).

23 It may be indicative that market forces left alone are also leading to a lot of mergers in the private pension providers in the CEECs (also involving large pension funds of Western Europe).

cumulative sum of pensions payment. In terms of annual incomes, the gender specific risk of elderly poverty will not be affected by gender-neutral annuity rates.

One critical element of the NDC pension system is how it credits absences from the labour market (such as those due to sickness and disability, and those for childcare). If the steady state scenario of a shorter working life career for women is assumed, the DC type pensions will reduce the annual benefits paid out to women.

- **The linking of benefits to contributions increases the importance of providing pension crediting for periods of non-work. Without adequate provisions of such credits, the shift to NDC systems reduces the generosity of the pension system towards carers.**

The shift to DC, and the determination of benefits by the amount of funds accumulated, makes it crucial to have in place adequate crediting systems for periods during which an individual is prevented by circumstances, such as sickness, unemployment, training or child and adult caring, from contributing. However, there is evidence that in many cases this element of reform was ignored. Thus, Fultz and Steinhilber (2003) reports that in Hungary contributors to the personal accounts system contribute 6% of their child care benefit to the pension system (instead of having credits as under the old system) and their future pension benefits will be calculated as a simple return on this contribution – i.e. investment performance minus management fees. Since this benefit is much less than wages, especially for middle and upper income earners, carers in Hungary will be worse off. In Poland the state pays a subsidy but this is based on the minimum wage and is 'much less generous than it was before'. By contrast in Sweden, the state gives extra pension rights to parents with children under four, though Sweden's 2005 National Strategy Report for adequate and sustainable pensions still stated that while "in principle, the national pension system gives everyone the same possibilities of building an adequate pension….many women still devote more time to unpaid work and less time to paid work than men, which results in lower average pensions for women." (pp. 26-27).

2.4 Concluding remarks

- **Reforms have been guided by fiscal sustainability concerns, and the net impact on risks of poverty for the current and future generations of pensioners is hard to measure.**

Though the recent pension reforms are expected to have significant economic effects, most of the studies that have been carried out to date have mainly focused on their effect on fiscal sustainability. This, in part, confirms that reforms were broadly driven by financial sustainability motives and there appears to have been very little assessment of the potential impact of these reforms on pensioner poverty. Thus, the World Bank's Independent Evaluation Group that recently reported on countries that followed the Bank's advice on pension reform concluded that 'there was insufficient attention on analysing the living conditions of the aged and exploring options for

expanding the safety net for those outside of the formal pension system' and that 'Bank involvement in pension reform was often prompted by concerns about fiscal sustainability…yet, in doing so, there often was a neglect of the primary goal of a pension system: to reduce poverty and provide retirement income within a fiscal constraint'.[24]

- **The benefit ratio will fall by more than a fifth over the next 50 years.**

The recently released assessment of age related public expenditures by the Economic Policy Committee and the European Commission[25] suggests that the projected benefit ratio (the ratio of average public pension relative to output per worker[26]) will decline by more than a tenth by 2025 and by more than a fifth by 2050. As can be seen from the Table below, there are many countries that are projecting a decline in relative public pension generosity. In some cases the magnitude of the decline is quite worrying, cases in point being most of the new Member States but also Germany, Austria, France Italy and Sweden. The data shown in the Economic Policy Committee/EU Commission paper indicate that the decline in the benefit ratio will offset nearly a third of the fiscal impact of ageing.

24 http://www.worldbank.org/ieg/pensions/documents/press_release_pensions_evaluation.pdf

25 Economic Policy Committee (2006).

26 Note that the benefit ratio does not measure the level of the pension for any individual relative to his/her own wage and, hence, is not equivalent to a replacement rate indicator.

Table 3: Projected benefit ratio

	2004	2025	2050	Decline in generosity
Belgium	17.7	17.6	16.4	-7%
Czech Rep	15.7	13.0	14.1	-10%
Denmark	20.2	19.3	19.2	-5%
Germany	18.5	15.6	13.3	-28%
Estonia	10.5	8.0	5.3	-50%
Spain	17.2	19.0	17.1	-1%
France	24.4	21.1	18.9	-23%
Ireland	14.3	16.6	15.7	---
Italy	20.0	18.8	14.0	-30%
Cyprus	25.6	25.5	30.8	---
Latvia	11.4	9.1	7.2	-37%
Lithuania	7.7	8.6	7.5	-3%
Luxembourg	23.5	26.4	28.0	---
Hungary	13.4	15.5	16.2	---
Malta	18.4	17.2	10.3	-44%
Netherlands	19.5	18.2	18.1	-7%
Austria	21.8	19.9	15.2	-30%
Poland	25.0	18.4	10.7	-57%
Portugal	18.6	17.2	15.4	-17%
Slovenia	18.9	17.4	17.3	-8%
Slovak Rep	13.0	12.0	8.8	-32%
Finland	19.8	18.8	18.0	-9%
Sweden	21.3	16.9	15.9	-25%
EU25*	21.7	19.8	17.0	-22%

* Excluding Greece and the UK that did not provide data.
Source: Economic Policy Committee (2006).

In some countries the expected decline, notably the CEECs, reflects a partial switch to the multi-pillar system, and so it could be partly remedied by the contribution of these new private personal accounts. However in other countries, the decline in generosity will not be offset by any other mandatory component. For instance, it is readily evident that countries that have turned towards the NDC formula, i.e. Sweden, Italy, Poland and Latvia will see a decline in annual state pension benefits, while countries that have introduced features that mimic NDC, i.e. Germany, Austria and France, will also reduce the liberality of their schemes. As stated previously, countries that have 'just' undertaken parametric reforms have still managed to cut back pension income generosity considerably – for example Portugal is projected to see a decline of nearly

a fifth. At the same time, this projection exercise confirms that existing parameters of the pension system will be exerting a lot of influence on future generosity. For instance, in Malta the setting of a maximum pension ceiling that rises in line with the social wage[27] means that by 2050 the system's generosity will have fallen by more than two-fifths. Similarly in the UK, the Second Report of the Pension Commission has reported that if the Basic State Pension were to have remained indexed to prices, its value 'as a percentage of median earnings would keep declining (from 19% today to 8% in 2050) and average state pension payments to pensioners would fall as a fraction of average earnings by about 27% over the next 45 years' (Pension Commission 2005: 120).[28]. These are worrying trends, but a higher employment and a greater share of private pensions may partly offset them.

- **The take-up ratio of benefits is also set to drop by a fifth. There appears to be a trade-off between the take-up ratio and the relative benefit ratio, since a decline in the former will lead to higher pension benefit entitlements.**

Besides projecting a dramatic drop in the benefit ratio, the Economic Policy Committee/European Commission projection exercise also forecast a decline in the take-up ratio of public pension benefits over the coming 45 years. These projections indicate that on average take-up ratio will decline by nearly a fifth up by 2050, and will reduce the financial effect of ageing by nearly a fifth. These projections, presented in the Table below, indicate that on average take-up ratio will decline by nearly a fifth up by 2050, and will reduce the financial effect of ageing by nearly a fifth. Note that the number of pensioners in the table is greater than the number of persons aged 65. This is mainly because of the inclusion of persons who receive early, disability and survivors' pensions and also because in some countries there are a number of pensioners who receive their pensions abroad (e.g. Luxembourg has a lot of migrant workers). In the majority of countries, the effective retirement age is also below 65 (e.g. France, Hungary, etc).

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27 In effect this means that this maximum rises by 2/3rd of the increase in the social wage, which in turn is the minimum wage plus some other social benefits. This wage is usually increased in line with inflation.

28 See Pension Commission (2005).

Table 4: Projected take-up of pensions: number of pensioners receiving public pensions relative to the population aged 65 and over (in 100s)

	2004	2025	2050	Decline in take-up
Belgium	140	141	137	-2%
Czech Rep	185	141	127	-31%
Denmark	156	140	124	-21%
Germany	160	140	124	-23%
Estonia	173	146	130	-25%
Spain	119	115	100	-16%
France	132	122	115	-13%
Ireland	135	127	117	-13%
Italy	140	124	111	-30%
Cyprus	102	113	115	---
Latvia	160	139	125	-22%
Lithuania	241	222	182	-25%
Luxembourg	201	209	235	---
Hungary	196	159	138	-30%
Malta	116	108	103	-11%
Netherlands	147	125	119	-19%
Austria	185	148	117	-37%
Poland	155	108	97	-37%
Portugal	173	183	169	-2%
Slovenia	175	149	132	-25%
Slovak Rep	195	159	135	-31%
Finland	158	129	122	-23%
Sweden	138	135	135	-2%
EU25*	149	133	122	-18%

* Excluding Greece and the UK that did not provide data.
Source: Economic Policy Committee (2006).

The main reasons for these pronounced declines are reforms that increase the effective retirement age either through a direct increase in the statutory age at which pension benefits are received and/or through tightening access to early and disability pension schemes. A recent European Commission paper estimated that the average age of exit from the labour force could increase by as much as 2 years by 2025 in Germany, France, Finland and Poland.[29] Measures of this sort impact most on the lower income groups, on account of their relatively shorter life expectancy and on their greater

[29] See Carone (2005).

dependency on state benefits to finance their retirement. This trend point to the fact that there will be significant reductions in the number of older workers who take up early retirement. Thus, a reduction in the take-up ratio is likely to result in a welfare enhancing pension income gains for the elderly.

- **Theoretical replacement ratios provide us with a useful indication of how pension systems are evolving, although they are derived from the replacement of income for stylised individuals (full-career workers, with average earnings throughout their working lives). Changes in net replacement rates offer us a proxy for the changes in the generosity of the system, and they are set to fall in 11 EU Member States.**

As analysed in some detail in Zaidi and Grech (2006), as many as 8 countries observed a significant decline in the net replacement rates, and for others the changes are moderate. Moreover, the gross replacement ratio before and after reforms in six EU countries varied differently across individuals who had earnings half the average, average and twice the average throughout their working career. In Germany, France and the United Kingdom, the reforms had a redistributive element as the reforms made low earning individuals better off (or less worse-off) compared to the average or high earning individuals. This differential effect is much stronger in Sweden and especially in the UK where recent changes in pension policy have concentrated on improving the incomes of the poorest pensioners. In contrast, the reforms in Poland and Slovakia appear to reduce the redistributive element that was present in these former socialist systems. Although these replacement rates are theoretical (as they are based on stylised working careers), they provide a good proxy of how the systems differ with each other and how systems evolved as a result of recent reforms. The reduction of the redistributive element is consistent with the fact that in the reformed systems benefits are closely linked with the contributory record of the individual in question. This trend, if continued, could result in a greater extent of poverty in the Eastern European new Member States and they will no longer able to maintain their status as the countries with lowest elderly poverty in EU.

All in all, the pension landscape in Europe has totally changed from that of a decade ago, with a notable drop in generosity of pension benefits in a number of countries. Some reforms will impact on poverty in different ways than others. There is a need to reassess reforms and look for best practices in dealing with challenges posed by population ageing for the social sustainability of both the current and the future generations.

3. Projections of risks of elderly poverty in EU25 (2025, 2050)

This section provides exploratory projections of how the risk of elderly poverty might evolve in the future. The underlying data for these projections is the median pensions to median earnings ratio (referred to as the generosity of the system). A simplistic methodology is adopted, so as to ensure transparency to the assumptions used in the

projections. At this stage, this work should be considered exploratory, and some further improvements in the specification of the regression model (particularly in the choice of explanatory factors) will be brought about in our follow-up work.

3.1 The current generosity of public pension systems

Table 7 presents data on the current overall generosity of pension systems. It compares the median individual pension income of retirees in relation to median earnings of employed persons aged 50-59, excluding private pensions and public social benefits other than pensions.

Table 7: Median pensions relative to median earnings

	Men	Women	Total
Belgium	0.62	0.61	0.61
Czech Republic	-	-	-
Denmark	0.74	0.71	0.71
Germany	-	-	-
Estonia	0.70	0.68	0.68
Greece	0.81	0.69	0.76
Spain	0.49	0.61	0.49
France	0.76	0.73	0.75
Ireland	0.52	0.57	0.52
Italy	0.82	0.71	0.78
Cyprus	0.41	0.41	0.41
Latvia	0.62	0.54	0.54
Lithuania	0.68	0.61	0.63
Luxembourg	0.75	0.83	0.77
Hungary	0.68	0.72	0.71
Malta	0.75	0.53	0.67
Netherlands	0.43	0.42	0.42
Austria	0.81	0.77	0.79
Poland	-	-	-
Portugal	0.70	0.67	0.68
Slovenia	0.74	0.61	0.68
Slovak Republic	-	-	-
Finland	0.67	0.63	0.64
Sweden	0.72	0.65	0.68
UK	-	-	-

Source: The European Commission (2006)

- **Public pensions are relatively generous across most European countries, with only 5 countries having median public pensions relative to median earnings of less than 60% (namely Spain, Ireland, Cyprus, Latvia and the Netherlands). Men, in general, have better pensions.**

Among the five countries with the least generous systems, one finds Ireland and the Netherlands, who both have flat rate pensions. A similar situation appears to exist for the UK, even though data on median pensions are not available. However, while occupational pensions are widely available in the Netherlands and the UK and in fact constitute the largest pillar, they are not as widespread in Ireland.

Generally, the level of pensions being paid to men exceeds in generosity than those being paid to women. There are only four countries where this is not the case, i.e. Spain, Ireland, Hungary and Luxembourg. In some countries there is a significant gap in generosity, notable examples being Malta, Greece, Slovenia and Italy (possibly reflecting a lower employment rate among women).

- **There appears to be a significant negative correlation between the generosity of public pensions and the risk of a higher poverty rate. This correlation is strongest for women and for people aged 75+.**

Figures 1-3 are a cross plot of the generosity of public pensions and the at-risk-of-poverty rates at 65+ and at 75+. Although there are some outliers,[30] this relationship appears to be statistically significant, with differences in generosity explaining 57% of the difference in risk-of-poverty rates for those 65+. Thus a country like Cyprus where public pensions amount to just 41% of median earnings, the lowest level among Member States, the at-risk-poverty rate is the highest in the EU-25. By contrast, Luxembourg – the country with one of the highest levels of generosity – has the lowest proportion of at-risk-of-poverty rate.

When one limits the analysis to just women, the strength of the relationship increases, with the generosity of pensions exerting a stronger influence on reducing at-risk-of-poverty rates. This reflects the fact that women are less likely than men to work, or to have other sources of income, beyond the age of 65. Again, women in Cyprus who face the least generous pension benefits have the highest at-risk-of-poverty rate, while those in Luxembourg are the least likely to be at risk of poverty (just 6%).

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30 Notably Latvia where less generous pensions do not seem to result in a significantly higher at-risk-of-poverty rate and Greece where though pensions appear to be generous, the at-risk-of-poverty rate is relatively high. Note that Netherlands has been excluded from this cross plot on account of the fact that public pensions represent less than half of the pension income of individuals (with the rest coming from quasi-mandatory occupational provision).

Looking at people aged 75+, there is a correlation of 58% between the generosity of public pensions and the at-risk-of-poverty rate. The countries with median pensions to median earnings of less than 60% (excluding Latvia) have the highest levels of at-risk-of-poverty among 75+. Furthermore, limiting the analysis to just women aged over 75; one finds the strongest effect of pensions in reducing at-risk-of-poverty rates.

Figure 1: Cross-plot: Public Pension Generosity vs Risk of Poverty 65+ (total)

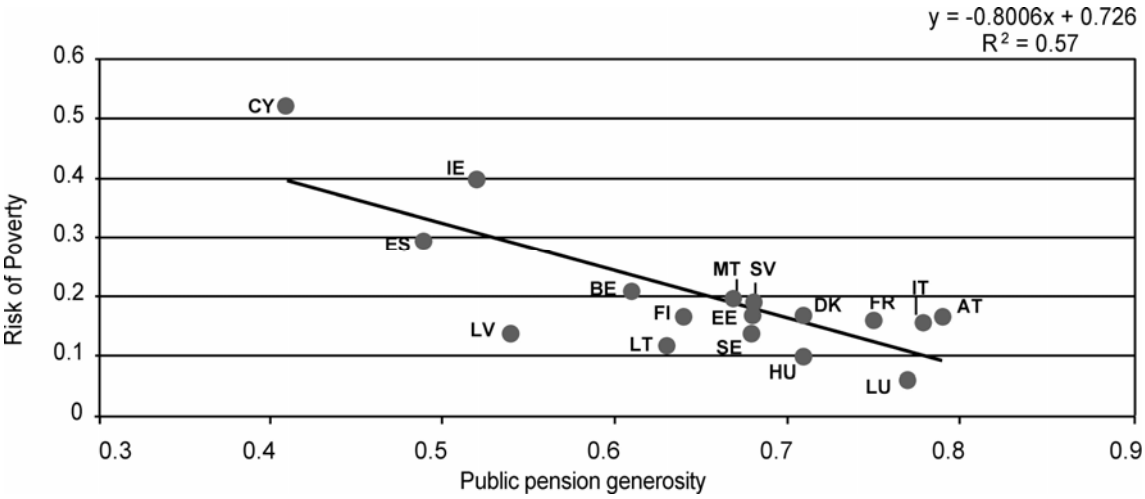


Figure 2: Cross-plot: Public Pension Generosity vs. Risk of Poverty 65+ (Men)

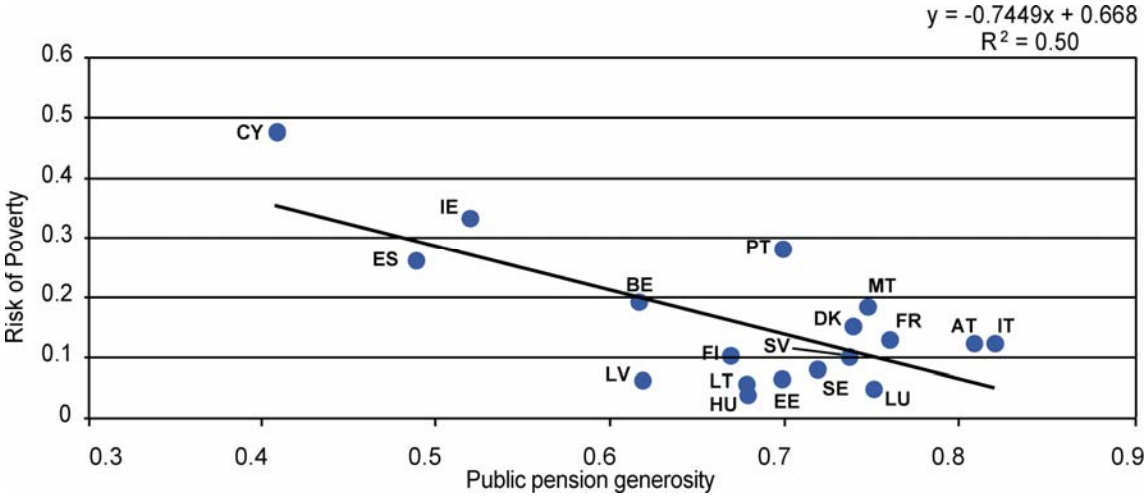
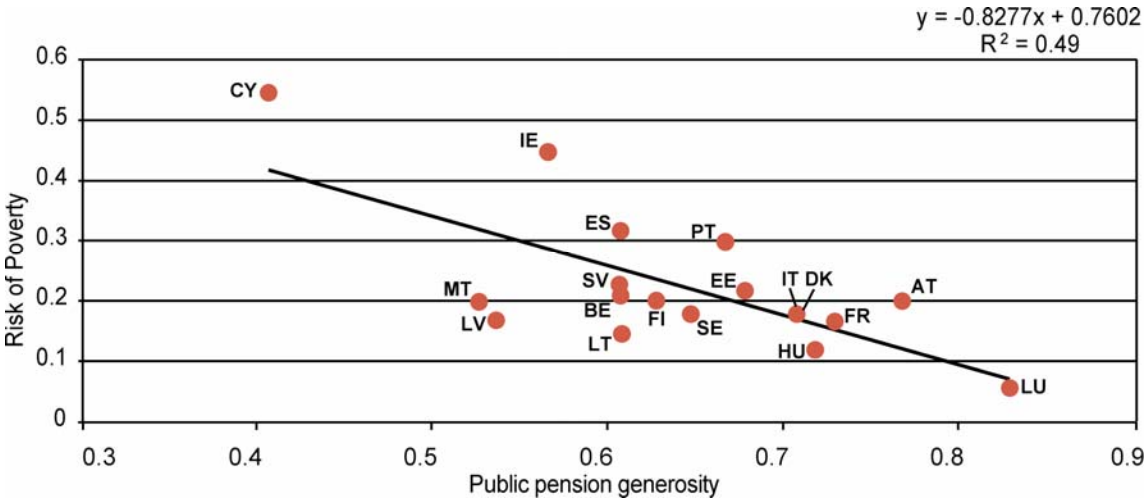


Figure 3: Cross-plot: Public Pension Generosity vs. Risk of Poverty 65+ (Women)



3.2 Assessing the impact of pension reforms on the risk of elderly poverty

- **While the theoretical replacement ratios are useful indicators of a system's relative generosity, they do not capture the actual replacement ratios faced by individuals. The median pension to median income ratio is more useful in this regard. Though projections of this ratio have not been produced to date, tentative projections can be made on the basis of the existing projections work done by the EPC and the EU Commission.**

The average benefit ratio projections published in the EPC-EU Commission paper on ageing-related public spending is a useful indicator of how future generosity of public pension systems will evolve. The definition of the benefit ratio – average benefits to output per worker – implies that it should evolve to a similar degree to the median benefit to median earnings (unless one assumes that the share of profits will be changing significantly over the coming years). Thus one may come up with a projection of the median pension to median earnings ratio based on the basis of projections made on the evolution of the benefit ratio. These projections are presented in Table 8 below.

Table 8: Projections of the median pensions relative to median earnings

	Total			Men			Women		
	2004	**2025**	**2050**	**2004**	**2025**	**2050**	**2004**	**2025**	**2050**
Belgium	0,61	0,61	0,57	0,62	0,62	0,57	0,61	0,61	0,57
Denmark	0,71	0,68	0,67	0,74	0,71	0,70	0,71	0,68	0,67
Estonia	0,68	0,52	0,34	0,7	0,53	0,35	0,68	0,52	0,34
Spain	0,49	0,54	0,49	0,49	0,54	0,49	0,61	0,67	0,61
France	0,75	0,65	0,58	0,76	0,66	0,59	0,73	0,63	0,57
Ireland	0,52	0,60	0,57	0,52	0,60	0,57	0,57	0,66	0,63
Italy	0,78	0,73	0,55	0,82	0,77	0,57	0,71	0,67	0,50
Cyprus	0,41	0,41	0,49	0,41	0,41	0,49	0,41	0,41	0,49
Latvia	0,54	0,43	0,34	0,62	0,49	0,39	0,54	0,43	0,34
Lithuania	0,63	0,70	0,61	0,68	0,76	0,66	0,61	0,68	0,59
Luxembourg	0,77	0,87	0,92	0,75	0,84	0,89	0,83	0,93	0,99
Hungary	0,71	0,82	0,86	0,68	0,79	0,82	0,72	0,83	0,87
Malta	0,67	0,63	0,38	0,75	0,70	0,42	0,53	0,50	0,30
Austria	0,79	0,72	0,55	0,81	0,74	0,56	0,77	0,70	0,54
Portugal	0,68	0,63	0,63	0,7	0,65	0,65	0,67	0,62	0,62
Slovenia	0,68	0,63	0,62	0,74	0,68	0,68	0,61	0,56	0,56
Finland	0,64	0,61	0,58	0,67	0,64	0,61	0,63	0,60	0,57
Sweden	0,68	0,54	0,51	0,72	0,57	0,54	0,65	0,52	0,49

- **Given the relatively strong negative relationship found between the generosity of public pensions and the at-risk-of-poverty rates, the anticipated decline in generosity is expected to result in an increase in at-risk-of-poverty rates among the 65+. The worst affected countries appear to be Estonia, Malta, Austria and Italy, with most of the increase expected between 2025 and 2050. On the other hand, at-risk-of-poverty rates should decline in Ireland and Cyprus, where the pension system is expected to become more generous.**

On the basis of the projections of median pensions to median earnings, if one assumes that the current relationship between generosity of public pensions and the at-risk-of-poverty rates holds, one can make projections of the proportion of the population aged 65+ that could be at risk of poverty in 2025 and 2050. This analysis should, however, be treated with caution as:

(a) it is based on the current relationship holding over the time;

(b) it is based on a limited number of countries and so results may not be statistically very robust; and

(c) it had to be assumed that the decrease in generosity of the system for males and females would be the same percentage.

In particular with regard to (a) one must note that this analysis ignores any growth in other sources of pensioner incomes, such as from private pensions, offsetting the drop in the generosity of the state system.

The countries where generosity is set to decline significantly, as expected, would see at-risk-poverty rates increase quite substantially, especially during the period 2025-2050, when the bulk of the reduction of generosity is expected. The at-risk-of-poverty rate in Malta and Estonia would end up becoming very close to that of Cyprus, while those in Italy, France, Austria, Latvia and Sweden would double. Pensioners, risk of poverty would become very acute for women in Estonia, Malta and Austria.

Table 9: Projections of at-risk-of-poverty rates for 65+, 2025 and 2050

	Total			Men			Women		
	Now	**2025**	**2050**	**Now**	**2025**	**2050**	**Now**	**2025**	**2050**
Belgium	0,210	0,213	0,246	0,200	0,203	0,234	0,210	0,213	0,247
Denmark	0,170	0,195	0,198	0,160	0,185	0,187	0,180	0,206	0,209
Estonia	0,170	0,300	0,440	0,070	0,194	0,328	0,220	0,354	0,499
Spain	0,300	0,259	0,302	0,270	0,232	0,272	0,320	0,267	0,323
France	0,160	0,241	0,295	0,140	0,217	0,268	0,170	0,252	0,306
Ireland	0,400	0,333	0,359	0,340	0,278	0,302	0,450	0,374	0,404
Italy	0,160	0,197	0,347	0,130	0,167	0,313	0,180	0,215	0,356
Cyprus	0,520	0,521	0,453	0,480	0,481	0,418	0,550	0,551	0,481
Latvia	0,140	0,227	0,299	0,070	0,163	0,240	0,170	0,260	0,335
Lithuania	0,120	0,061	0,133	0,050	-0,009	0,063	0,150	0,091	0,163
Malta	0,200	0,235	0,436	0,190	0,226	0,436	0,200	0,229	0,393
Austria	0,170	0,225	0,361	0,130	0,183	0,313	0,200	0,256	0,393
Portugal	0,290	0,331	0,328	0,290	0,329	0,326	0,300	0,342	0,339
Slovenia	0,190	0,233	0,236	0,110	0,154	0,157	0,230	0,270	0,273
Finland	0,170	0,196	0,217	0,110	0,135	0,155	0,200	0,226	0,247
Sweden	0,140	0,252	0,278	0,090	0,201	0,226	0,180	0,291	0,316

nb: This list includes only 16 Member States. This reflects data availability and in the specific cases of Hungary and Luxembourg statistical issues related to the robustness of projections.

- **A similar picture emerges when looking at persons aged 75+, in particular for women. Only a handful of countries would have at-risk-of-poverty rates below 30%.**

Given the fact that the over 75s are more dependent on state pensions, the anticipated decline in generosity is expected to increase risk-at-poverty rates by a significant margin for them. Only three countries would have rates lower than 30%, while for women most countries would have rates that exceed 35%. Malta and Estonia again would see the sharpest increase in the at-risk-of-poverty rates, but even countries like Sweden, Italy, Austria and France would see very significant increases. Conversely countries, like Belgium, Denmark, Spain, Ireland, Cyprus, Lithuania, Portugal, Slovenia and Finland would be having a moderate increase or a minor decrease.

Table 10: Projections of at-risk-of-poverty rates for 75+, 2025 and 2050

	Total			Men			Women		
	Now	**2025**	**2050**	**Now**	**2025**	**2050**	**Now**	**2025**	**2050**
Belgium	0,21	0,213	0,255	0,20	0,204	0,246	0,21	0,213	0,255
Denmark	0,23	0,261	0,265	0,25	0,283	0,287	0,22	0,252	0,256
Estonia	0,18	0,341	0,515	0,03	0,197	0,378	0,24	0,404	0,582
Spain	0,34	0,289	0,343	0,32	0,268	0,323	0,35	0,285	0,354
France	0,18	0,281	0,348	0,15	0,253	0,322	0,19	0,290	0,357
Ireland	0,44	0,357	0,389	0,35	0,266	0,299	0,50	0,407	0,443
Italy	0,15	0,197	0,383	0,12	0,169	0,367	0,17	0,213	0,386
Cyprus	0,67	0,672	0,587	0,67	0,672	0,586	0,67	0,672	0,586
Latvia	0,16	0,268	0,358	0,05	0,176	0,279	0,21	0,320	0,412
Lithuania	0,15	0,077	0,166	0,06	-0,020	0,078	0,19	0,118	0,206
Malta	0,21	0,254	0,504	0,18	0,229	0,512	0,24	0,275	0,477
Austria	0,18	0,249	0,418	0,10	0,171	0,346	0,21	0,278	0,446
Portugal	0,35	0,401	0,397	0,35	0,403	0,399	0,36	0,411	0,407
Slovenia	0,25	0,304	0,307	0,17	0,229	0,233	0,28	0,329	0,332
Finland	0,25	0,282	0,308	0,15	0,184	0,211	0,30	0,332	0,358
Sweden	0,20	0,340	0,372	0,14	0,289	0,323	0,24	0,376	0,407

- **These projections must be interpreted with caution. In particular, it must be stressed that they assume that the decline in state benefits is not compensated by individuals´ behavioural responses to work longer or accrue greater income from private pensions.**

These projections have assumed throughout that the only thing that matters for the at-risk-of-poverty rates is the generosity of the state system. However this does not give an entire assessment of the actual sources of income of current pensioners, let alone future ones. These projections must rather be interpreted as providing an indication of what could happen to elderly poverty if individuals do not work more or save more.

In our follow-up work, we will assess to what extent a more rigorously defined regression model will result in any different sets of projections. It will be tested whether other factors (such as a decline in the take-up ratio) might mitigate the increase in the elderly poverty projected in some countries. Moreover, we will test to what extent (projected) data on other explanatory factors could serve as the explanatory factor in such projections.

4. Synthesizing discussion

This paper has sought to describe briefly the pension reforms that have taken place during the last decade or so in the present 25 Member States of the European Union. While in 1995, nearly all the Member States of the EU had an earnings-related DB PAYG scheme as the main centrepiece of their pension system, by 2005 nearly half of the Member States had shifted towards other pension models, notably personal accounts or NDC schemes. Moreover all countries had, or considered, changes to their state pension schemes during this time. In most cases the reforms were mainly driven by fiscal sustainability concerns and the impact of these reforms on income adequacy and pensioner poverty do not appear to have been given significant consideration. In particular, the effects of systematic shifts on particular groups, such as women and lower income earners, have not been assessed in great depth. The current paper takes a first step in that direction.

The qualitative analyses included in the paper point us to three main issues:

(i) To what extent individuals are aware of the impact of the changes that are happening in the pension system, and whether they are trying to accommodate these by increasing their savings and employment;

(ii) In the absence of a positive behavioural change, will certain groups, particularly lower income earners with a worse state of health and less employable skills, be able to adjust their working lives to maintain their living standards in retirement; and

(iii) Will these reforms prove to be politically sustainable in the face of growing elderly electorates? The scope of the reductions in generosity in annual pension benefits appears to be rather large in some countries, and further increases in longevity will mean an even more pronounced decline.

These issues point towards the need to reassess most of the reforms that have been carried out and outline those that are less likely to result in pensioner poverty. For instance, France's reform to link the number of contribution years required to qualify for the state pension with longevity may be less socially risky than Germany's policy to link the value of pension benefits to the dependency ratio. This is mainly because the French policy sends more clear signals to individuals that they need to work longer to qualify for the same benefit, rather than simply giving them a smaller benefit and then possibly facing a political backlash and having to increase this benefit. Similarly the administrative structure adopted by the multi-pillar reforms in the CEECs needs to be looked at and reformed in a way as to reduce administrative costs and make the

systems less burdensome on low-income earners. Moreover policymakers need to ensure that individuals understand the choices before them, particularly the longevity risk, and that incentives for savings must increase. Policymakers need to remember that pensions were not introduced by chance, but were the result of social consensus that poverty amongst the elderly must be eliminated. If pension systems end up failing this main task, it is very probable that the social forces that combined to create pension systems may unravel the recent reforms that have taken place.

In a way the experience of the UK confirms this. The process set in place with the 1980 reforms, which were leading to an ever-falling level of state pensions, has been halted in recent years, with measures such as the introduction of pension credit and the state second pension. The propositions set forth in the white paper 'Security in retirement: towards a new pension system', such as the re-linking of the basic state pension and measures to set up a system of personal accounts, also in effect imply a move away from the purely voluntary approach to pension provision advocated in the 1980s. The UK experience may thus be taken as an example of how pension reforms that look solely at ensuring fiscal sustainability may require further changes once the effects on pensioner poverty become more apparent. Policymakers, thus, need to ensure that reforms aim at ensuring not only sustainable pensions, but also adequate pensions.

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