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## Abstract

The last two decades have been characterised by significant changes in national pension arrangements. While at first, a consensus seemed to be evolving around a one-size-fits-all reform, more recently, the trend has been towards a better customisation of reforms. This paper reviews this process, focusing on five pension policy design issues. These are how policymakers have sought to optimise poverty alleviation effectiveness; the redefinition of the state's role in smoothing incomes over the life-course; the balancing of contributions to benefits; adjusting the system to be more responsive to demographic, economic and social changes; and ensuring that reforms will be long-lasting.

While the role of state pensions still appears to be on a diminishing path, there has been a growing realisation of the need to ensure that they remain adequate. This has led to the setting up of innovative minimum pension schemes and credits for periods of childcare and unemployment. The expanding role of private pensions has also led governments to intervene more in their operation. Policymakers have shown strong interest in automatic adjustment mechanisms, to try to bring about required economic changes. However, there is greater understanding that for the latter to happen, the state has to engage more with its citizens. While changes in pension systems can help societies respond to the ageing transition, for instance by removing incentives to retire too early or by aligning better the generosity of benefits to contributions made, there will need to be a much broader policy response.

## 01. Introduction

At their inception, pensions were not seen as a social benefit for the masses. Rather, they started as deferred payment for preferred workers (such as civil servants).<sup>1</sup> Collective bargaining and political movements gradually spread this benefit more broadly. These programmes also started to merge or overlap with social assistance or charity schemes, which had tended to be geared towards the elderly. However, even with the great expansion of the welfare state in the New Deal in the US and in the post-war era in Europe, pensions still remained mainly an insurance kind of welfare benefit, as relatively few survived to pension age and for not very long.<sup>2</sup> All this changed with the lengthening of life spans after the 1950s, which transformed pensions into a benefit which would be accessed by most citizens.

Just as this happened, the capacity of economies to provide them began to be called into question.<sup>3</sup> This reflects growing concern of the impact of the ageing process – caused by the combination of the retirement of the Baby Boom generation, the decline in fertility rates and the acceleration in longevity improvements. Besides potentially boosting pension spending, this transition is expected to have significant economic effects.<sup>4</sup> However, as Hering (2006) notes, while all countries face similar demographic trends, governments have responded differently, with some changing the parameters of their systems, while others transforming them into something very different. This suggests that reforms also reflected the preferences and options of governments. For instance, reforms carried out in Central and Eastern Europe focused on shifting the responsibility of retirement income provision unto individuals, in an attempt to spur the growth of private enterprise and deepen financial and capital markets.<sup>5</sup> Moves towards tighter links between contributions and benefits have been justified as resulting in actuarially fair pension systems with correct incentives for individuals to contribute and work. Other reforms have tried to reflect social changes, such as the move away from a male breadwinner model in a full-employment economy, and adjust systems to new realities by individualising pension claims and providing more flexibility.<sup>6</sup>

The scope of this note is to review some of these changes and delineate broad policy lessons. Starting by looking at the purposes pensions serve, this review then asks five system design questions and provides an overview of the different answers policymakers have adopted. The main conclusion, besides the usual ‘one size does not fit all’ argument, is that to be sustainable, solutions need to be framed clearly in terms of the objectives and constraints that the specific pension system has. Unless citizens are made aware of what their pension system can deliver and at what cost, it is unlikely that solutions can work beyond the very immediate term. As policy reversals in countries as far afield as the UK, Chile and Hungary attest, not getting this right the first time means having to start again a few years down the line. Only if economic behaviour changes in response to an acceptance of policy changes can solutions prove long-lasting.

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<sup>1</sup> One of the first pension schemes was set up for Royal Navy officers in the 1670s.

<sup>2</sup> Back in 1950, just 7.7% of the population in more developed regions was over 65, according to the United Nation's World Population Prospects database. Life expectancy at birth in 1950-55 was just 64.7.

<sup>3</sup> IMF (2011) suggests that spending on pensions in advanced economies nearly doubled between 1970 and 1990, growing by 3.1% of GDP mainly due to increased generosity, though ageing also contributed. Since 1990 there has been an increase of just 0.2%, as the growing impact of ageing was countered by a higher labour participation, tightening eligibility conditions and a less generous growth in generosity.

<sup>4</sup> Maddaloni et al (2006) suggest that in the absence of reforms, under the assumption of an unchanged rate of labour utilisation and productivity growth, demographic trends imply a decline in average real GDP growth for 2020-2050 in the euro area to 1%, from the average of 2% observed in 1980-2005.

<sup>5</sup> There has been a long academic debate on funding pension systems. Feldstein (1974) argues that social security taxes distort labour supply and lead to lower saving, while the system's implicit rate of return is lower than that on saving. These arguments have been countered by Orszag & Stiglitz (1999) and Barr (2000).

<sup>6</sup> See De Graaf et al (2007).

## **2.0: What purpose do pensions serve? How much has changed over the last decades?**

Pension plans have a relatively long history, but they became more common in the wake of industrialisation and urbanisation. Holzmann & Hinz (2005) portray the rise of modern systems as a reaction to the socioeconomic changes of the nineteenth century, noting that “as individuals moved out of the traditional agricultural family structure, there was a need to establish formal risk management arrangements that could substitute for the informal arrangements that were eroding in the face of the transition”.<sup>7</sup> State income-transfer programmes towards the elderly can be traced to the late nineteenth century, first in Germany and Denmark. The reasons why pensions were established in these two countries differed significantly. In Germany, Chancellor Bismarck was interested in “tying workers’ interests to the new German state”,<sup>8</sup> while the Danish scheme was introduced as a locally administered means-tested scheme for needy citizens over age 60. This distinction reflects two different aims – in the German case: a need for income stability over the life-course, and in the Danish case: a need to alleviate poverty during old age. These two aims have characterised pension systems throughout the decades, and while some systems remain in policy rhetoric focused on one particular aim, nowadays, most pension systems serve both purposes.<sup>9</sup>

Barr & Diamond (2006) argue that “from an individual viewpoint, income security in old age requires two types of instruments: a mechanism for consumption smoothing, and a means of insurance”. The first purpose involves the transfer of consumption from productive middle years to retired years, allowing one to choose the preferred time path of consumption over working and retired life. Barr & Diamond (2006) further contend that “a second reason for government involvement (in pensions) is that public policy generally has objectives additional to improving consumption smoothing and insurance, notably poverty relief and redistribution”. Thus, pensions serve as a means to target resources on people who are poor on a lifetime basis and also redistribute incomes on a lifetime basis (subsidising the consumption smoothing of low-income individuals). Pension systems can, moreover, be used to redistribute across generations. Besides, these primary objectives, policymakers have secondary goals mostly relating to the effect of the system on economic behaviour in labour and capital markets, and to create incentives for socially required, but unpaid, activities such as caring and child rearing. If not conceived as aims, these effects can be seen as constraints. Thus, if a system results in too high tax rates, it would adversely affect economic growth, while a system that provides very generous benefits may displace private saving and thus result in smaller capital markets.

The main constraint on pension systems is the financial resources allocated for this purpose. From the very beginning, this factor played an important role in shaping pension policy. In most countries when pensions were established, governments established specific taxes or contributions to finance them. These concerns persisted over time and systems in some countries (such as the UK and Australia) took a relatively long time to move beyond a basic poverty alleviation role or tended to involve private sector employers (rather than the state) in income replacement. The pre-funding of pension promises also tended to be quite common and in some British ex-colonies, such as Singapore and Malaysia, has survived to this day. In most countries, this hypothecation of tax revenue or pre-funding shifted towards the pay-as-you-go scheme (PAYG) of financing pensions, when the coverage and generosity of pension schemes was boosted in the post-war years. More recently, this shift has been depicted as an attempt by the post-war generation to play a Ponzi game with the burden of paying for pensions being shifted unsustainably to future generations.<sup>10</sup>

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<sup>7</sup> Caucutt et al (2007) also explains the emergence of social security in the US in terms of the population shift from rural to urban areas.

<sup>8</sup> See Palacios & Sluchynsky (2006).

<sup>9</sup> Ove Moene & Wallerstein (2003) studies empirically the importance of these two roles in shaping pension (and other social) expenditures in OECD countries.

<sup>10</sup> See for instance, Disney (2000). This depiction has been criticised. For instance, Hills (1995) argues that rather than depicting PAYG as an exploding ‘chain letter’, one would be more correct in thinking of it as a single line of people passing a box of chocolates to each other. Unless someone panics in the interval between passing on their original box and receiving their neighbour’s and stops the game, there would be no losers. Thus “provided the line carries on indefinitely and that no one changes the rules” PAYG need not be unsustainable. This does not necessarily apply when one has a shrinking population, as here the line becomes less populated.

At the start of the 1990s, one model dominated Europe. Pensions were run by the state, based on PAYG funding and with earnings-related defined benefit (DB) determination. There were variants – for instance Germany's points system,<sup>11</sup> Ireland's flat rate system,<sup>12</sup> and the Dutch state system supported by quasi-mandatory occupational provision. However, throughout most of the second half of the twentieth century, reforms in Europe, had tended to move countries closer to this single pension model, with even Beveridgean countries,<sup>13</sup> like the UK, introducing earnings-related features, and countries in Southern Europe moving away from traditional methods of family support during old-age. The 1990s, however, saw a clear break in this trend. European Commission (2010a) includes a comprehensive review of this break, noting that the main features involved the strengthening of contributory principles, a greater role for pre-funding, the establishment of automatic adjustment or periodic review mechanisms, changes in coverage, minimum income provision and indexation, increasing complexity and a closer link with the labour market.<sup>14</sup>

Hering (2006) notes that “two-thirds of the fifteen old EU countries reproduced their pension systems by enacting numerous marginal adjustment measures, focusing either on the refinancing or retrenchment of public pensions...but four countries—Sweden, Italy, Germany and Austria—restructured their pension systems by cutting public pensions and replacing these increasingly with private ones, and thus, began a gradual shift from the dominant pillar model to the multi-pillar one”. Besides these countries, many Eastern European countries also opted for systemic reforms, i.e. moving away from the DB determination structure and adopting a defined contribution (DC) system.<sup>15</sup> Here, one can discern two types of reforms: World-Bank inspired multi-pillar reforms based on personal accounts (e.g. Slovakia and Hungary) and the adoption of Notional Defined Contribution (NDC) systems<sup>16</sup> (e.g. Sweden, Italy and Poland). Some countries, while not shifting totally, have adopted some DC elements. For instance, France has introduced a link between the number of contribution years required for a full pension and life expectancy while Germany has adopted a sustainability factor that links the level of pension benefits to the dependency ratio.

The main difference, between parametric and systemic reforms, lies not in the financial impact on pensioners (or contributors), but in the sharing of risk between the current generation and future ones or the state (the custodian of future generations in this respect). In fact, as can be seen from Table 1, the projected change in pension spending has tended to be quite large even in countries, such as Cyprus, Greece and Spain, which have focused on parametric reforms. By introducing some DC elements, countries like France and Germany are also converging to the projected spending path of countries, like Italy and Sweden with NDC systems. Across the EU, the reforms conducted in the last 6 years are estimated to have cut the projected rise in spending between 2010 and 2050 from 2.5% of GDP to 1.5%. This despite that longevity projections have been revised upwards while potential GDP growth has been lowered as a result of the crisis.

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<sup>11</sup> Under a points system, entitlement is based on pension points accumulated. A year's contribution at the average earnings earns one point. Points are multiplied by a pension value to determine the monthly benefit.

<sup>12</sup> Under a flat-rate system, all those who meet the set conditions get paid the same benefits. In an earnings-related DB system, benefits are determined as a ratio of a set salary – the final salary, the average lifetime salary or an intermediate figure - on which contributions were paid.

<sup>13</sup> A common categorisation of European pension schemes is between Bismarkian and Beveridgean systems (see Bonoli (1997)). This harks back to two different pension schemes, that introduced by Bismarck in Germany where pensions are related to employment and represent a deferred salary, and that advocated by Beveridge in the UK where pensions tend to be less linked to previous income and instead are meant to reduce poverty.

<sup>14</sup> Zaidi et al (2006) also provides a succinct review.

<sup>15</sup> In a DC system, the benefit is determined by the value of assets accumulated. These assets are typically invested, with capital gains/losses borne by the contributor (unless rate-of-return or capital guarantees are provided). Since funds are invested, they cannot be directly used to finance current pensions; i.e. they break the PAYG chain, and force governments to redeem the implicit debt of their pension systems.

<sup>16</sup> In an NDC system, contributions are placed in a notional account and given a notional interest rate. Benefits are determined on the basis of the balance on these accounts spread over the expected lifetime of the individual. For an in-depth review of how NDC systems work, see Palmer (2006).

Recently, in the wake of the financial crisis, some governments have been rethinking these changes. In Latin America, Chile introduced a number of important changes, notably the introduction of a solidarity pension to provide a robust system of poverty relief.<sup>17</sup> A number of Central and Eastern European countries, such as Poland and Hungary, have reversed some of the multi-pillar reforms.<sup>18</sup> Moreover, as European Commission (2010b) points out “most automatic mechanisms have not yet been applied in practice” and that even “prior to the crisis, a few countries had already taken political decisions to postpone automatic adjustments”. For instance, Italy delayed the automatic updating of life expectancy projections in its NDC system while Germany increased pension benefits beyond what was allowed by its automatic adjustment mechanism.

**Table 1: Projected change in spending on pensions (2010 to 2050)**  
**2012 report    2009 report    2006 report    2001 report**

<b>Austria</b>	2.3	1.3	-0.6	2.1
<b>Belgium</b>	5.7	4.4	5.1	3.4
<b>Bulgaria</b>	1.2	1.7		
<b>Cyprus</b>	6.7	8.6	12.9	
<b>Czech Rep.</b>	1.9	3.1	5.8	
<b>Denmark</b>	-0.5	0.2	2.7	0.8
<b>Estonia</b>	-0.9	-1.1	-2.6	
<b>Finland</b>	2.9	2.6	2.5	4.3
<b>France</b>	0.6	0.7	1.9	2.7*
<b>Germany</b>	2.2	2.1	2.6	5.7
<b>Greece</b>	1.9	12.4		12.2
<b>Hungary</b>	1.5	1.9	6.7	
<b>Ireland</b>	3.9	5.0	5.9	4.0
<i>Italy</i>	<i>0.4</i>	<i>0.7</i>	<i>0.7</i>	<i>0.2</i>
<b>Latvia</b>	-3.3	0.7	0.7	
<b>Lithuania</b>	2.1	3.9	1.9	
<b>Luxembourg</b>	9.0	13.5	7.4	1.8
<b>Malta</b>	3.0	3.7	-1.8	
<b>Netherlands</b>	3.6	3.8	3.6	4.5
<i>Poland</i>	<i>-1.8</i>	<i>-1.7</i>	<i>-3.3</i>	
<b>Portugal</b>	0.6	1.4	9.7	1.4
<b>Romania</b>	2.9	6.4	7.3	
<b>Slovakia</b>	4.2	2.8	2.3	
<b>Slovenia</b>	6.7	8.1	2.3	
<b>Spain</b>	3.8	6.6	6.8	8.4
<i>Sweden</i>	<i>0.3</i>	<i>-0.6</i>	<i>1.1</i>	<i>1.1</i>
<b>UK</b>	0.5	1.4	2.0	-0.7
<b>EU</b>	<b>1.5</b>	<b>2.2</b>	<b>2.5</b>	<b>2.9</b>

\* Period covered is 2010 to 2040, as 2050 projection unavailable.

Note: Unavailable projections left blank. Countries with NDC systems are in italics.

Source: Own workings using projections in various EU Commission Ageing Reports

<sup>17</sup> See Barr and Diamond (2008), pp.239-256.

<sup>18</sup> See Whitehouse (2012).

### 03: Pension system design issues – the main questions

Given that state pension systems have become the main item of government expenditure in many countries, and that pensioners are fast becoming the majority of the voting electorate in many democracies, it is not surprising that there is considerable literature on pension system design. The debate has been somewhat dominated by international economic institutions, though more recently academics have increasingly contributed to change this 'consensus'. This section will focus its attention on what we believe are the main system design issues and present examples of best practice from a number of countries.

#### 03.1: How to optimise poverty alleviation effectiveness?

As mentioned previously, in some countries, state pensions evolved out of poverty alleviation programmes, and policymakers continue to see them mainly as an anti-poverty measure. In other countries, where the main focus is on income smoothing, there tends to be some conflict between providing a good poverty alleviation function and the need to ensure actuarial fairness and the strict application of the contributory principle. There are a number of different ways in which countries have tried to tackle this trade-off.<sup>19</sup>

Some countries have opted for a clear separation of roles, setting up a non-contributory flat-rate pension, which is awarded either on the basis of an income test,<sup>20</sup> or else on other conditions such as residence or citizenship (e.g. New Zealand and the Netherlands). The main difference between these approaches centres on incentives. While means-tested systems cost less, as the more affluent are excluded, they may create incentives that reduce saving or work. Means-testing can also be difficult to implement, especially as regards income from self-employment or capital. Flat-rate pensions do not raise these issues as everyone gets the same, no matter what. However, one needs to consider that flat rate pensions need to be financed from somewhere, and if this is through distortionary taxation (e.g. income tax), they also indirectly create disincentives to work and save for taxpayers.<sup>21</sup> That said, countries with flat-rate universal pensions tend to have very low levels of pensioner poverty (e.g. 1.5% and 2.1% in New Zealand and the Netherlands, respectively).

The situation is even more complicated when poverty alleviation is conducted within the main earnings-related pension scheme. Here again, there are a number of options. For instance, there could be a minimum pension floor/guarantee, which is applicable to anyone who fulfils the set conditions. In many cases, these involve a minimum number of contribution years (e.g. the UK's full Basic State Pension is granted to those with 30 years of contributions). Even in fully funded DC schemes, such as those in Chile, there are ways of granting a minimum pension, for instance by giving a minimum guaranteed return on assets<sup>22</sup>. The main problem with this approach, lies in the need for people to have contributed, leaving out those with little labour market attachment (mostly women). To minimise this, policymakers have introduced a number of contribution credits, such as for years devoted to child care or spent in unemployment.

The tension between maintaining the contributory principle and providing effective poverty alleviation has, however, increasingly tended to be resolved by the setting up of new schemes. In Chile, there was the creation of the Solidarity Pension while, a decade earlier, the UK introduced the Pension Credit. In other countries, this trade-off was tackled by introducing graduated pension guarantees. This ensures, that those with small contributory pension benefits, get benefits higher than the guarantee. For instance, in Sweden, the guarantee pension is withdrawn completely only for those persons whose earnings-related pension exceeds more than a third of average earnings. In the UK, government appears to want to do away with the income smoothing principle altogether, and focus on providing a single flat rate benefit to all.

Besides deciding on the form of minimum benefit, policymakers also need to decide at what level to set it. Again, there is a wide variety of approaches, which results in very different results.<sup>23</sup> Some countries,

<sup>19</sup> For an overview of minimum pension systems in the EU, see Social Protection Committee (2006).

<sup>20</sup> This means-test can be quite complicated. For instance, in Australia it is combined with a capital test.

<sup>21</sup> See Barr and Diamond (2008), pp. 113-115.

<sup>22</sup> See Jouten (2007).

<sup>23</sup> For a comparison across the OECD, see <http://dx.doi.org/10.1787/888932370797>.



like the Netherlands, link the minimum pension to the minimum wage, while some look at the average wage. In some cases, such as Estonia or Germany, policymakers refer to minimum budget standards (i.e. that income which would allow the consumption of a given basket of essential goods and services). The effectiveness of the minimum pension, however, rests crucially on how its value changes over time. In most countries, not only are minimum pensions set below the relative poverty threshold, but they are also indexed to prices, meaning that over time they lose their relative value. While there is considerable evidence that policymakers tend to raise minimum pensions above what is statutorily required,<sup>24</sup> indexation combined with rising longevity poses significant poverty risks for the very old.<sup>25</sup> This has led some countries (such as the UK) to reinforce indexation, while some others (such as Malta) have introduced age-related top-ups for older pensioners.

### 03.2: What role does the state have in smoothing income over the life-course?

While there is some consensus on the role of government in alleviating pensioner poverty, there has traditionally been a divide on the state's role in smoothing income over the life-course. A number of countries, such as the US, Australia and the UK, place this role more squarely on the shoulders of individuals. However, there are a number of economic reasons, primarily related to adverse selection, moral hazard and myopia, why this role has been organised on a national basis.<sup>26</sup> On a more technical side, it is increasingly better understood, that decentralised or individualised income smoothing arrangements, tend to come at great cost and fail to take advantage of economies of scale in investment and administration.<sup>27</sup>

Despite the little agreement on what amounts to an adequate degree of income smoothing<sup>28</sup>, international organisations have come up with benchmarks. The ILO's 1952 convention on social security benefits states that pensions should be equivalent to 45% of wages. Holzmann & Hinz (2005) set out the World Bank's view that "for a typical, full-career worker, an initial target of net-of-tax income replacement from mandatory systems is likely to be about 40% of real earnings", while replacement rates higher than 60%, are seen as unaffordable. The main issue with these benchmarks is that, if replacement rates are the same across the wage distribution, this could result in higher poverty among those on low incomes. This is one of the main issues faced by countries that tried to make their systems more actuarially fair. Removing progressiveness, unless the underlying income distribution or labour participation is relatively equal, exacerbates poverty risks.

Policymakers in many countries, appear to be more willing to sacrifice the income smoothing role of state pensions, than its poverty alleviation function.<sup>29</sup> One of the main changes has been a move towards determining benefits on the basis of career-average earnings, rather than final or best years. This has lowered replacement rates, for those on high earnings, especially those with strong earnings progression. Some countries, such as the UK, have also skewed accrual rates, by reducing them just for those on medium-to-high wages. In some cases (for instance in 1983 in the US), this was done on pensions in payment, with cost-of-living adjustments being granted just on small pensions. Modifying the maximum pensionable income, by less than earnings growth, while adapting a different approach to the income on which contributions are paid also acts against those on high incomes. While it may seem unfair to focus pension cuts on those on medium-to-high incomes, one needs to consider that compared to those on lower incomes, they are more likely to draw their pension, and to do this for much longer periods.<sup>30</sup> This gap appears to have increased in many countries, and therefore it is not certain that despite that pension cuts have focused on this group, its members have ended up with noticeably smaller overall pension transfers.

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<sup>24</sup> See Social Protection Committee (2006) and European Commission (2010b).

<sup>25</sup> See Grech (2012).

<sup>26</sup> See Jousten (2007).

<sup>27</sup> Countries that used to rely exclusively on private competition are increasingly interfering. For instance, in the UK after legislating caps on charges, government has set a scheme to offer a low-cost alternative to savers.

<sup>28</sup> See Grech (2013) for a discussion of this topic.

<sup>29</sup> See Grech (2014) for an analysis across EU countries.

<sup>30</sup> In the UK those in the highest socio-economic groups live beyond 65 up to 3.5 years more than those at the bottom (see Longevity Science Advisory Panel (2012)), implying they draw their pension for a fifth longer.

A primary reason why policymakers may have felt more comfortable reducing income smoothing is that there exist several financial products that can help fulfill this role. The growing reliance on private pensions has, however, led governments to focus their attention more on the regulation of this market. For instance, in the UK, following a number of mis-selling incidents,<sup>31</sup> there has been a significant emphasis on improving financial education, restrictions on selling/ marketing, improving transparency and reducing charges. Concerns about funding have also led to the establishment of protection funds to help reduce the impact of scheme insolvencies and there has been an increased focus on imposing portfolio limits. Countries that at first had hoped that given the right information, consumers would choose optimally, such as Sweden,<sup>32</sup> have had to redraw their schemes to limit choice and focus on providing good default funds for those not wanting to make a choice. The shifting of responsibility on individuals, has not resulted in a clean break for governments. In some cases, such as in Eastern Europe, lacklustre performance has led to partial reform reversals. Governments have also had to offer considerable tax incentives to make people save (for instance, the success of Riester pensions in Germany reflects the innovative subsidies offered), and in some cases when this failed they have had to auto-enroll individuals into personal pensions (see NEST in the UK and Kiwi-saver in New Zealand).

### 03.3: How best to balance contributions to benefits?

While it might seem directly related to choices made by policymakers on the relative scope of poverty alleviation and consumption smoothing, the decision on how best to balance contributions to benefits is, in many respects, separate. As Barr and Diamond (2008) state; “there are two polar extremes: benefits can be determined by past contributions and the returns on those contributions, in which case benefits can exceed or fall short of initial expectations; this is called a pure defined-contribution plan...or benefits can be determined on other criteria and guaranteed to be paid no matter what the eventual return on contributions: this is the definition of a pure defined-benefit plan.”<sup>33</sup>

The two approaches are quite different. In the first, pensions are to a great extent individualised, with little scope for redistribution intra- and inter-generationally. In the second, pensions for different persons can also be different (as they will satisfy the required criteria in different ways), but there is greater scope for redistribution. The risks borne by contributors are also different. In DC pensions, individuals face rate-of-return risk, longevity risk, and unless there are generous crediting arrangements, labour market detachment risks. In DB systems, they do not face these risks to the same extent, though the parameters of the plan may be changed to account for them. As Barr (2013) in his study of the Swedish NDC pension system notes; “the central idea that every krona of contribution for every person should count the same ... embodies a self-imposed constraint that the costs of adjustment fall on current contributors and pensioners ... since benefits are strictly related to contributions, the arrangement by implication gives fiscal sustainability priority over adequacy.”

The shift towards DC schemes has occurred in both public and private plans. While it may appear in many respects to be due to plan sponsor concerns on the impact of longevity, there have been other drivers. In particular, it reflects the trend towards greater individualization, seen across the more developed regions since the 1980s. In this climate, having a pension system that forces everyone to retire at the same time, and with similar benefits appeared to be a straitjacket. The concept that one's pension benefits will reflect the contributions one makes, is intrinsically attractive and claims that a system is actuarially fair are bound to make it seem more equitable. However, it is very hard in practice to achieve either actuarial fairness or actuarial neutrality.<sup>34</sup> Take for instance, someone who retires under an NDC scheme. The scheme will assume the person will live a given set of years, but it is hardly likely that this will turn out to be correct. Similarly, it is relatively hard to judge how best to ensure that the relative value of retirement benefits remains actuarially fair throughout retirement. Moreover, a system which is completely inspired by this concept, of course, reproduces in retirement the same income inequity present in working age.

<sup>31</sup> For an overview of these episodes, see Barr and Diamond (2008), pp. 157-158.

<sup>32</sup> See Barr (2013).

<sup>33</sup> pp. 37.

<sup>34</sup> See Queisser and Whitehouse (2006).

Reflecting these concerns, in some countries (notably Sweden), policymakers have allowed horizontal redistribution, giving credits for care and unemployment. They have also sought to provide a good safety net. In others (e.g. Poland), these provisions do not appear that strong and may give rise to gender (and overall) equity issues in coming decades.<sup>35</sup> Similarly, the imposition of one access age for benefits has been addressed in some countries. Those with DC or NDC have flexible retirement ages, while many DB schemes now have bonus features (in many cases with uneven schedules favouring late retirement).<sup>36</sup> Relying overly on the rationality of individuals and assuming they will accept lower living standards, if they appear to be caused by their own labour market and investment decisions, may however be optimistic. As IMF (2012) points out; “that while in most countries there will be no legal obligation for government to step in, a contingent liability could arise from an implicit social obligation of the pension system to ensure adequate income in retirement, especially for low-income groups”. In many cases, the decision to contribute or not, and the wage an individual contributes on, is hardly completely in one’s discretion.

One aspect that is frequently forgotten, is that a fully actuarially fair system may be unnecessarily inflexible. It might be better for an economy, if adjustment is staggered over a period of time. This idea of optimal tax smoothing underpins a number of pre-funding arrangements, for instance the US’s Social Security Trust Fund arrangement. The idea is that plan sponsors carry out regular long-term assessments and enact the required changes smoothly in a way that does not place the whole burden on one particular generation. The criticism that these arrangements frequently fail to deliver the required changes due to political inaction is fair, but in truth it remains to be seen whether schemes with automatic adjustments will actually automatically adjust without any problems.

#### 03.4 Can the system be made more responsive to demography and other risks?

Where economic and social changes are fairly easy to forecast, forward-looking policymakers would be able to develop the right balance between contributions and benefits. Experience has shown how naive this assumption is. Even something that historically has been fairly stable, longevity, has managed to befuddle actuaries. Few would have guessed a couple of decades ago that about one-third of babies born in 2012 in the UK are expected to become centenarians.<sup>37</sup> Likewise, the social planners of the 1940s and 1950s, were taken by surprise by the Baby Boom, as fertility is another supposedly stable phenomenon. The same surprises occurred in economic variables, such as output growth and inflation. Time and time again, forecasters failed to indicate large turning points, such as the high inflation and unemployment in the 1970s, and the great recession of the late 2000s.

Initially, the main concern for policymakers was how to ensure that rapid economic growth or inflation would not erode the relative value of pensions. This contributed to the setting up of post-retirement indexation. However, the growing realisation of the possible impact of longevity soon turned the focus on how to reduce financial pressures. In fact, one of the most frequent reforms has been to reduce indexation to be below wage growth. In the long run, this can have very substantial effects. In the UK, the state pension in a matter of less than two decades fell from over a third of the average wage to closer to one-sixth. Some countries with DB systems have also changed the valorisation of earnings; that is they no longer fully adjust past earnings to take into account of changes in living standards between the time pension rights accrue and when they are claimed. A more hotly debated topic has been the adjustment of the pension age, even though most advanced economies have done this. Initially this has mostly concerned the equalising of pension ages between genders, soon followed by an increase for both genders. In many cases this change was heavily contested and was placed far in the future (for instance in the US the change was announced twenty years in advance). This has changed in recent years, with countries pushing changes more rapidly (for instance the pension age in Germany will be 67 at about the same time as in the US, even though the latter enacted the change decades earlier). In others, such as the UK, governments have quickened the pace of already announced pension age changes.

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<sup>35</sup> See Grech (2012).

<sup>36</sup> Queisser and Whitehouse (2006) suggest pensions should be reduced by 8% for every year before age 65, but that OECD countries, on average, reduce them by just 5%.

<sup>37</sup> Unforeseen longevity developments are not necessarily an upside risk. For instance, few would have foreseen that male life expectancy in the Russian Federation, after having risen by ten years between 1950 and 1990, would have fallen by more than five years between 1990 and 2005. Similarly in South Africa, after having increased by 20 years between 1950 and 1995, female life expectancy fell by 13 years between 1995 and 2010.

The political complexity of changing pension age, as well as concerns that policymakers may be caught out again by an unexpected rise in longevity, have heightened interest in automatic mechanisms.<sup>38</sup> Countries like Denmark, Greece and the Netherlands have specified an amount of years for which pensions are to be paid, and mandated changes in the pension age if longevity increases this period. In NDC and DC systems, retiring at the same age despite higher life expectancy automatically lowers benefits. Less well-known are more complex automatic adjustments that affect valorisation or post-retirement indexation. For instance, in Portugal new old-age pensions are adjusted downwards on the basis of how life expectancy at 65 in the year before pension entitlement compares with that observed in 2006. In Germany and Japan, the adjustment is conducted on the basis of changes in the system dependency ratio: i.e. when the number of beneficiaries to contributors increases, the pension is reduced. The Swedish automatic balancing mechanism is even more complex, adjusting the notional interest (i.e. the valorisation of contributions) whenever there is a projected deficit between projected revenues and outlays. In Canada, the adjustment takes the form of either freezing indexation or else raising the contribution rate.

The main risk of automatic mechanisms that impact solely on pensions-in-payment is that they could make them inadequate, particularly for the very elderly. This solution appears quite sub-optimal, as these pensioners can take very little action to remedy for increasing longevity. Adjustments of the pension age are less inequitable, though to be economically effective, many countries would need to carry out substantial labour reforms to raise effective retirement ages. Countries like Italy or Greece, where according to Eurostat the duration of the working life is of just 30 and 32 out of the possible 49 years, between age 16 and 65, may have automatically indexed pension ages, but it is clear that unless something major changes individuals will just end up exiting the labour force on other benefits. Adjustments that affect valorisation, or like in France the link between longevity and the contribution years required to get a full pension, could possibly induce economic behaviour changes, such as working longer or saving more. However, to be effective, individuals need to be made quite aware of these complexities and be in a position to respond to incentives.

### 03.5 Is the country able to handle the pension reform?

The increasing complexity of pension systems, leads to an important, but frequently ignored, policy question; namely whether a country can implement optimally a proposed reform. Pension systems may look great on paper, but unless policymakers can implement them effectively, they will fail or lead to ad-hoc and inconsistent adjustments or, worse still, policy reversals. There are several examples of such failures occurring in developed economies which supposedly had the right conditions.<sup>39</sup> For instance, in Poland, despite considerable emphasis on building the administrative infrastructure, the introduction of the NDC scheme, nearly failed due to issues with the implementation of the new computer system, compliance problems and administrative inefficiency. In Chile, the individual accounts system did not reduce the large informal sector and the state had to come in to pay more generous minimum pensions once people started to retire on the new system. In Sweden, after initial strong interest in the personal accounts part of the system, the bulk of contributors gradually stopped making an active investment choice.

As Barr and Diamond (2008) emphasise; “effective reform requires at least three sets of skills: in policy design, administrative and technical implementation, and political implementation”.<sup>40</sup> They point that if implementation issues are not given importance at the design stage but treated as an add-on, this is a recipe for disaster. These considerations reflect the main conclusions of the World Bank’s assessment of its pension policy assistance (World Bank (2006)); namely that “to ensure well-tailored assistance to country conditions and consistent policy prescriptions, the Bank needs to implement guidelines for Bank staff for the development of pension operations, paying more attention to the minimum macroeconomic and financial sector preconditions necessary for multi-pillar reforms”. The review also stresses the need that “the Bank needs to ensure that client capacity to implement pension reform is adequate” and the need to focus on “consensus-building among stakeholders”.

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<sup>38</sup> See for instance European Commission (2012), pp.93-95.

<sup>39</sup> See Fultz & Stanovnik (2004).

<sup>40</sup> See pp. 151.

Among the important lessons, are that decentralised systems have been costly and not necessarily have led to the enhanced competition and improved performance that reformers had foreseen. Centralised systems, while more cost-efficient in the long run, require a significant start-up cost, and considerable institutional effort in the short-term. Rather than assuming away the underlying economic and social conditions of a country, such as the size of the informal sector and the development of its financial industry, reforms need to take these into careful consideration. The assumption that individuals will change behaviour once a new system is in place has hardly been realised, even in the face of supposedly strong financial incentives. Behavioural economics has provided us with a substantial number of explanations of why what appears irrational behaviour is in fact perfectly rational. Pension reforms need to be part of holistic economic reforms, which involves amongst other things, active labour market policies, welfare benefit reforms, financial education campaigns and an overhaul of financial sector regulation and oversight. It also does not make sense to ignore transition costs, particularly the impact on government finances of pre-funding future pension claims.

Finally policymakers need to work towards achieving as wide a consensus as possible, and try to achieve changes that prove long-lasting. Typically, this process has been facilitated by setting up technical or bipartisan commissions (e.g. the UK Pensions Commission was formed by three respected representatives of employers, trade unions and academia, while the Greenspan Commission in the US included members appointed by both parties who were in close contact with their party leaders). These commissions placed significant emphasis on proving the case for reform and being recognised, as the national experts on the subject. Equally as important, is the need to have a good degree of political debate and possibly even more crucial is the process of public discussion and information dissemination. One common thread uniting pension policy reversals, is that reforms had been ideologically driven, with some inspired by external experts relatively unfamiliar with the country's conditions, and that very often little was done to ensure that citizens were adjusting in the right way.<sup>41</sup>

#### **04. Conclusion**

The last two decades have been characterised by significant changes in national pension arrangements. While at first, a consensus seemed to be evolving around a one-size-fits-all reform, more recently the trend has been towards a better customisation of reforms. In the face of pressures, from the ageing transition, the role of state pensions appears to still be on a diminishing path, but there has been a growing realisation of the importance of ensuring that pensions remain adequate. There has been increased interest in setting up innovative minimum pension schemes and providing contribution credits for periods of childcare and unemployment. The expanding role of private pensions, in providing income smoothing, has led to governments intervening more in their regulation and performance monitoring. Here again, the initial focus on decentralised provision, is now changing, to reflect concerns about administrative costs and the relative lack of engagement of citizens in active investment.

While there still is a strong interest in (and great faith in the promise of) automatic adjustment mechanisms, there is greater understanding of the fact that for economic behaviour to change optimally, the state needs to engage more with its citizens. Policymakers, have increasingly recognised that what really matters is that future generations need to be put in a position to accommodate the economic pressure of having a larger dependent population. While changes to the pension system can help achieve this, by, for instance removing incentives to retire too early or by aligning better the generosity of benefits to contributions made, there will need to be a much broader policy response.

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<sup>41</sup> For instance, Chlon-Dominczak (2000) notes how while surveys in Poland showed that "most people felt they were well informed and that information on the pension reform was readily available", they also indicated "that the knowledge of the pension system was limited to slogans rather than a deep understanding". The study also finds that "a significant proportion of people simply joined the pension fund of the first agent they came across".

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