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Principles and practice of social security reform

Alvaro Castro-Gutiérrez[1]

International Social Security Association (ISSA)

Geneva

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Summary

This paper is intended to provide an insight into the principles and the practical experience observed in the process of social security reform. In the first place, the paper reviews the main ideas behind social security reform, the main features of proposed reform approaches and the goals established in both economic and social terms. An overview of main reformed pension systems is provided. Some reflections about prospects and issues to be taken into account for policy consideration are presented as conclusions. Final remarks are also made about the the role of the actuary in this process.

The social security reform debate: problems and the proposed solutions

At the outset, mandatory national public pension schemes were established in many countries to provide income replacement for the disabled or the retiring worker and his/her family. This was a first approach based on insurance principles, as opposed to approaches based on saving principles (provident funds). Originally introduced in many countries as mandatory schemes financed by fixed uniform contribution rates providing flat-rate benefits, national public pension schemes gradually moved into earnings-related, defined benefit (DB) schemes (Mouton, 1984). Based mainly on the collective funding principle, the catastrophic experiences in the first half of the 20th Century due to economic crisis and the Second World War led to the choice of financing national public pensions following the so-called pay-as-you-go (PAYG) principle.

This formula worked out satisfactorily until the late 1970s, when increasing criticisms about the high cost of pension schemes and the concern about their financial sustainability in the medium and long term, and the pertinency of this burden to national economies spread from economic to political circles in many countries. At the same time, demographic prospects indicating population ageing as the major threat to economic development and to the financial equilibrium of social security schemes (including health services and long term care

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[1] Actuary ASA, Association of Swiss Actuaries. I wish to thank Warren R. McGillivray, Fellow, Society of Actuaries, Associate, Institute of Actuaries, and Chief, Studies and Operations Branch, ISSA, for comments and suggestions to the draft text of this paper.

for the elderly) contributed to the debate about the need to reform national pension systems: worsening of the old-age dependency ratio resulting from lower fertility levels and improvements in mortality rates would lead to the financial bankrupcy of pension schemes. In fact, criticisms responded to widespread turbulences affecting most public pension schemes throughout the world. The consensus about the PAYG, public pension systems providing the main source for income replacement started breaking down.

A new milestone in social security history?

The publication in 1994 of a World Bank study: *Averting the Old Age Crisis: Policies to protect the old* and *promote growth* proclamed that publicly managed, PAYG, DB national pension schemes were at the origin of current high and rising rates of contribution, misallocation of public funds, lost opportunities to increase long-term savings, failure to redistribute resources to low-income groups, growth of a large implicit public pension debt and fiscal unsustainability (World Bank, 1994).

The World Bank study identified three functions of old age security systems: redistribution, savings and insurance, and evaluated the policy options for meeting these by two criteria: their impact on the aged and their impact on growth. It concluded that a mix of three systems, or “pillars”, offers the strongest results. These are: a publicly managed system with mandatory participation and the limited goal of reducing poverty among the old; a privately managed, mandatory savings system; and voluntary savings (World Bank, op. cit.).

This was the starting point of an international debate affecting political, economic and social circles. The implications of the World Bank proposals for national public pension systems were clear: to replace the PAYG insurance system by a defined contribution (DC), fully funded, individual savings accounts system, managed by private pension funds.

This is a high profile topic, in terms of the overall political debate, research and input from national and international experts and the ultimate legal proposals and legislative reforms taking place in many countries. In fact, a number of countries are at present contemplating, planning or implementing major changes to their social security pension schemes.

In any case, the main questioning of the role and function of today's social security systems is directly linked to the questioning of the roles of the state and the public sector in society, in the present world of global changes. This trend is more evident if account is taken of major political and economic changes as from the end of the 1980s. The welfare state, a main characteristic of formerly centrally-planned economies has collapsed; most developing countries have experienced and are currently witnessing enormous economic dificulties. The market economy principles, the role of the individual and his/her active engagement in the economy, and globalisation are presented as the roads to follow in the search of solutions to today's current problems (Castro-Gutiérrez, 2001).

Is this new approach a milestone in the history of social security? The origins of social security go back to 1889, when Germany introduced social insurance pensions to protect workers in the event of invalidity or old-age, based on insurance principles: the so-called Bismarck model. A new concept, which gave rise to modern social security was introduced in the United Kingdom in 1942, the *Report on social insurance and allied services*, by Sir William Beveridge. It is commonly referred to as the Beveridge model. It recommended a twofold method: financing for family benefits and the national health service by the Treasury, that is to say, recourse to national solidarity; financing for replacement benefits mainly by contributions from the insured persons and, in the case of wage earners, from their employers, in accordance with the classic principle of social insurance. It is too early at this point to give an answer to the question about the World Bank's model being considered as a new milestone for social security.

Because the main issue behind the pensions reform debate is the criticism about the negative economic impact of PAYG systems. However, pension systems are not created because of the impact they might have on the macroeconomy. They are designed, first and foremost, to be mechanisms that provide retirement income to the to the aged population (Thompson, 1998).

The proposed solutions

Social security schemes have always been regularly reviewed and modified. And this is normal. They have been adjusted to take into account economic and demographic developments. But these changes have been of a non structural -or parametric- nature i.e. measures have been adopted to modify the systems with a view to making them less burdensome and at the same time more financially sound in the long term. For instance, raising retirement age, increasing the number of years of contribution for benefit entitlement, lowering the replacement levels of pensions, modifying the adjustment of benefit formulae, etc.

Since the early 1980s some experts and policy makers indicated that these (parametric) solutions were only piecemeal, that a radical, in-depth pension reform was needed if the pension problems were in fact to be seriously faced and solved, in a way compatible with the new economic and political realities. This led to the adoption of radical structural reforms of national public pension systems in a number of countries since the early 1990s, following the above-mentioned model proposed by the World Bank. (For a comprehensive overview on background and implications of pension reform see, for instance: Daykin and Lewis, 1999.)

Technically speaking, the model in question was originally introduced in Chile in 1981, i.e. more than a decade before the above referred World Bank study, and it was generally accepted that it was working well. Technically speaking also, the "new" approach was original as far as the replacement of a national, public pension scheme by a DC, privately managed scheme is concerned. But it is well known that such an approach is quite classic and common in occupational pension funds financing practice. It is interesting to note that in the UK the Civil Service Superannuation Fund, which can be traced back to 1810, led the way to the concept of funding in advance. Leaders in this area were large employers such as banks and railway companies, where actuarial techniques were used in calculating costs and management of funds (*Modelling the Future*, 1998).

In some other countries the World Bank approach was not followed, and an alternative system was introduced: a mixed of PAYG and partial funding, based on a « notional defined contribution » (NDC) to finance pensions.

Under this concept, the amounts of all contributions paid throughout a career (including fictitious interest payments) is calculated at the point in time when an individual retires. In a classical mandatory public savings scheme or private insurance scheme (i.e. DC schemes) the amount of contributions is calculated by accumulating past contributions and interest earned on these contributions throughout an individual's carieer. The rate of interest used is generally equal to the net return on investment earned by the scheme during the insurance years. Under the NDC scheme, the amount of all contributions is calculated mathematically in the same way, the difference being that, in savings or private insurance schemes, at the point of retirement a balance is available which can be used to finance pensions. In NDC schemes the balance is an amount that exists only on paper –a fictitious present value. In an NDC PAYG scheme, no interest was earned on past contributions, as these were spent to finance current pensions. NDC schemes thus have to determine an adequate ficititious rate of return for past contributions on the basis of political discretion. Different variables are possible: the rate of increase of GDP for example, the rate of increase of average insurable earnings, market interest rates, or the rate of increase of total insurable earnings. This « interest » rate is the first discretionary factor which can be used for the financial « fine-tuning » of the scheme (Cichon, 1999).

Once the amount of past contributions is established, pensions are calculated by dividing the amount by an annuity factor. As it is well known, the annuity factor is the present value of a pension of 1 from the age the pension is awarded until the death of the pensioner. The pension may or may not be indexed in future. The annuity factor thus depends on three parameters: the mortality pattern assumed, the interest rates used for the discounting of future pension amounts, and the rate of adjustment of future pensions. If the future rates of adjustment are equal to the assumed rates of discount, then the annuity factor is by construction equal to the life expectancy at retirement age. However, both rates are further discretionary factors for the financial « fine-tuning » of the systems. It should be noted that that already the rate of increase of wages could be a conservative estimator of long-term interest rates which, in the past two decades in major OECD countries were higher than long-term average wage increases. Therefore, it is likely that NDC benefit levels under wage adjustment are potentially lower than under DC schemes operating on market rates of return and wage indexation (Cichon, op. cit.).

The conclusion is that NDC is a novel pension policy instrument rather than a new type of pension formula ; most of its potential financial and distributive effects could also be achieved by a classical, linear DB formula.

An enlarged debate

Both the DC and the NDC systems are indicative of the need for permanent research in order to identify optimal solutions compatible with national economic and social realities, without losing sight of the non structural reforms that can be effectively implemented (and have been effectively introduced) in many mature pension schemes in industrialised countries. These different approaches are also reflective of the need for an enlarged debate in the pensions reform process.

The debate has expanded to take into account social and other aspects of pensions, including adequacy of retirement pensions. Five basic goals for pension reformers have been proposed:

- Social acceptability
- Financial sustainability
- Political feasibility
- Coherence with economic and labour market realities
- Client-friendly management and administration

Ideally, the perfect contemporary reform should fulfil all five considerations. In the real world, however, reformers have to settle for less than ideal solutions because political feasibility is likely to limit their ambitions of meeting fully the other four goals (Tamburi, 1999)

Some countries have managed to avoid political and commercial pressures to adopt radical reforms to their pension systems. In some others, reforms have been introduced apparently without due regard to the real long-term implications, in macroeconomic and social terms, of such reforms. But it is true that assessing the "real long-term implications" is far from being a simple exercise in todays' changing world. A number of countries have reformed their pension schemes taking into account the so-called "pillars" of protection principle, in addition to tax-financed welfare programmes.

The multi-pillar principle (which should be more appropriately referred to as the multi-levels system of protection, since there are complementarities among them) is the following:

- First: mandatory, contributory public DB scheme
- Second: mandatory, privately managed, individual accounts DC scheme
- Third: voluntary, privately managed savings scheme

The question is: What are the relative proportions of retirement protection which are expected to be provided by the first and the second pillars? The first pillar is subject to political risk and the second to investment risk. The expected proportion of the total pension to be provided from each of these pillars should be based on an assessment of the relative risk of failure to provide the benefit and the capacity of the responsible body (the government in the case of the first pillar; the individual in the case of the second pillar) to bear the risk (McGillivray, 2000).

The current situation

Countries have encountered problems in the political process of deciding on and implementing social security pension reform. Many of them have found that, once the need for reform has become apparent, the processs of reaching a consensus on the reform to be implemented has taken years. The reform process may be slow because it has considerable risks for politicians and government officials responsible for it. Pension reform needs to be researched and considered carefully. Thought should also be given to the way to manage reform. Managing the process of reform is an important aspect of the governance of social security schemes (Gillion, 2000a).

A review of countries that have introduced major reforms following non-structural and structural changes to their schemes in say, the last two decades, would be too long and in any case incomplete in illustrating the extent and the contents of their reforms. Only countries that have introduced radical or structural reforms to their pension systems are indicated in the following paragraphs; i.e. parametric reforms are not considered here. The list is not exhaustive; it also includes countries where reforms have been merely copies of reforms already introduced in some other countries (years in brackets are either those when legislation was proposed or adopted, or those of implementation of the new scheme).

The following countries have implemented or are planning to introduce DC schemes as the main component of income provision for retirement at the national level: Argentina (1994), Bolivia (1997), Bulgaria (2000), Chile (1981), Colombia (1994), Dominican Republic (2001), El Salvador (1998), Kazakhstan (1997), Mexico (1997), Nicaragua (2001) and Peru (1993).

In some other countries, DC schemes have been introduced as an important component of retirement income: either as a complementary (second pillar) scheme: Costa Rica (2001), Spain (1987) and Uruguay (1996) or with a view to implicitly replacing the PAYG system in the medium term.

Either NDC or DC principles have ben introduced in a number of countries: Brazil (2000), Croatia (1999), Italy (1999), Hungary (1998), Latvia (2000), Norway (2001), Poland (1999), Russian Federation (1998), and Sweden (1999).

Of course there are other countries involved in the pension reform process, and their reform will likely become very important in macroeconomic and financial terms. But the above mentioned countries are relevant for the purposes of understanding and trying to explain the reasons why two groups of countries -so different in their economic and social conditions- have been so actively involved in radically reforming their schemes. One is the group of countries which can be considered as leading in this process: Latin American; the other group is composed by all the Central and Eastern European countries. The following paragraphs focus on these two groups of countries; therefore, the Western European countries mentioned before are not going to be considered in this paper.

The Latin American experience

Apparently similar in their economic and social development, Latin American countries are not homogeneous. Historically and traditionally their economies have indicated marked, different economic developments, as well as their social security systems' evolution. In general terms, two subgroups of countries can be identified: countries of the South-Cone area (Argentina, Chile, Uruguay, and Brazil), and the countries of the tropical area (Mexico, Central America and northern South America). In the former group industrialization started a century ago, their populations are today at the advanced ageing stage (except Brazil) and their social security systems started operating early last century or between the two world wars, based on the PAYG principle. In the second group of countries economic development started much later and mainly relied on agriculture; population ageing accelerated in the late 1980s; social security was introduced as from the late 1940s until the 1960s, based generally on a partial funding basis.

The pension reform movement resulted from the difficult situation of existing public pension schemes in respect of: (i) low level of benefits provided; (ii) limited coverage in term of both economically active and total population; (iii) coexistence of multiple schemes with costly administrations; (iv) deterioration of the demographic dependency ratio; (v) deteriorating financial dependency ratio, with virtually no actuarial reserves to face increasing benefit expenditures; (vi) low return on investments; (vii) contribution evasion; (viii) bad and non efficient administration; and the resulting generalised loss of confidence.

Analysis of pension reform in Latin America indicates that they have been closely linked with political processess. The diversity of designs has been influenced more by political considerations than by a scientific approach to the reform. Groups traditionally excluded from pension protection in the past, such as agricultural workers, informal sector workers and the self-employed, have not been included in the reform process (even if the possibility of voluntary participation is contemplated in most reform laws). An underlying reason is these groups lack of political influence, but in addition their low and discontinuous incomes represent serious financial and administrative obstacles to their inclusion in the new schemes.

A certain number of problems have emerged through the implementation of the pension reform. They are related to specific, traditional -but also new- areas of conflict, influencing directly three main areas: (I) the contributing worker (or insured person); (II) the national economy; and (III) the retired person (Mesa-Lago, 2001a).

(I) The insured

The following issues were presented as fundamental, positive advantages for the contributing worker in the reformed systems: freedom of choice of the best pension fund; significant improvements in coverage; enhanced levels of compliance; affordable cost (levels of DC rates).

None of the indicated advantages for the insured worker has been supported by evidence; on the contrary. A long list of factors can illustrate the reasons behind the adverse results on each of the issues referred to.

(II) The national economy

Pension reform would lead to a healthier economy as a result of: competition among pension fund administrators, inevitably lowering the cost of the scheme; promoting capital accumulation, increasing real invstment yields; a diversified investment portfolio market; promoting national savings and improving fiscal costs.

Pension fund administrators have decreased in number in all countries, mergers and concentration being the general rule. Capital accumulation has improved in general, depending on the size and performance of national economies. Real investment yield indicators also show positive results, but with fluctuations due to economic cycles. Portfolio diversification: although some diversification has taken place, concentration is still significant. Promoting national savings and lowering fiscal costs have been amongst the chief ideas behind pension reform; a most interesting example of this is the case of Chile (the oldest reformed scheme in operation), where capital accumulation has been impressive; but the measurement of the impact has to be made on an annual basis, substracting the fiscal cost of the reform resulting from the state paying the various costs of the transition period (deficit generated in the closed public system, the so-called recognition bond to insured who moved to the new private system, the guaranteed minimum pension to all participants in the private system) from capital accumulation; recent studies show that in Chile the net outcome of the reform on national savings has been negative (average: -2.6 per cent of GDP per year) during the first 15 years of operation (Mesa Lago, Op. Cit.).

(III) Impact on the retired

First, if the low and decreasing coverage persist, there will be an increasing number of people retiring without pension entitlement, therefore a considerable pressure on the state to provide social assistance pensions. Second, the trade offs between fiscal and benefit costs, i.e., a low fiscal cost during the transition period means a low level of pension benefit for retiring workers (Bolivia and Peru); conversely, generous rules concerning the benefit for the transition generation imply a higher fiscal cost. Chile has the most generous regulations concerning the transition but also the highest fiscal costs (Mesa-Lago, op. cit., and Mesa-Lago, 2001b).

Latin America has been the reference for pension reform around the world and the process continues. Nevertheless, many countries in this region maintain pension schemes based on the traditional DB social insurance principles, either as the only social security scheme in the country or as a main provider of income replacement for the retired worker but as part of a multi-pillar system of social protection.

Central and Eastern Europe

The transition countries of Central and Eastern Europe are often considered to be similar, and thus to face the same types of problems. While this was only partially true before the collapse of the centrally planned economies of the region, it has since become even less so. Differences are increasing across countries in their economic and social situation and also in their institutional solutions in the area of social protection.

The social protection systems in most Central and Eastern European countries have features inherited from the systems of the former planned economies, which consisted of an explicit and an implicit component. The explicit system provided pensions, short-term cash benefits and health care. The implicit component added security through specific income distribution mechanisms, such as guaranteed employment, provision of low-cost housing and heavily subsidised basic goods and services, in addition to a system of cash and in-kind benefits provided by state enterprises for employees, their families and retirees (Gillion, 2000a).

The benefits provided by existing and newly created social protection systems are not sufficient to handle current social problems. All countries in Central and Eastern European countries are trying to adapt their social protection systems to the economic, social and political environment. The problem is that this environment is often far from being stable or satisfactory.

The state of the reform process varies greatly from country to country. For the most part, however, reforms are proceeding on parallel tracks: a short-term, ad hoc, track and a long-term, structural track. The earliest reforms were emergency responses to emerging problems: for instance, repeatedly adjusting pension benefits to high inflation. The second reform track began in many countries with a separation of social insurance funds and institutions from government administration (Albania, Czech Republic, Hungary). Sometimes basic pension schemes were supplemented by voluntary tiers (Czech Republic, Hungary). Comprehensive reform of basic pension schemes has been implemented (Croatia, Czech Republic, Latvia, Hungary, Poland).

The current social security reform generally includes a modified retirement scheme with a higher retirement age and longer periods of contribution; benefits related to earnings contributions; and supplementary (mandatory or voluntary, private or ocupational) second- and third-tier schemes.

The reform process is complex and inevitably fraught with problems, of which the most obvious are the lack of coordination and deficiencies in the management of change and insufficient analytical back-up. The uncertainty about the economic and financial sustainability of long-term commitments is playing an increasing role. Stalemate in the political decision-making process slows the reform process. But delays are also caused by factors rooted in these countries' governance and administrative systems, which are not yet geared to engineer far-reaching reforms in pluralistic societies (Gillion, 2000a).

Prospects and main issues for consideration

In this section consideration is given to recent findings and proposals in the pension reform implementation process, which could be taken as the main prospects for consideration in future pension reform planning, in order to avoid past mistakes and devise more refined technical tools in concrete circumstances.

In 1999 a World bank conference "New Ideas About Old Age Security" revisited pension reform issues, five years after the book *Averting the Old Age Crisis* was published. A study presented at the conference reviewed the main issues of the model proposed by the World Bank, taking as a departure point that the Bank study originally noted that "myths abound in discussions of old age security". The paper indicated that in practice, the "World Bank model" has been interpreted as involving one specific constellation of pension pillars: a relatively small, publicly managed, PAYG, DB pillar; a privately managed, mandatory, DC pillar; and a voluntary private pillar. The study explored in detail the private, mandatory, DC component , and ten myths implicit in the World bank model (Orzag and Stiglitz, 1999). The myths in question are:

Macroeconomic myths:

- Individual accounts raise national savings
- Rates of return are higher under individual accounts
- Declining rates of return on PAYG systems reflect fundamental problems
- Investment of public trust funds in equities has no macroeconomic effects

Microeconomic myths:

- Labour market incentives are better under individual accounts
- DB plans necessarily provide more of an incentive to retire early
- Competition ensures low administrative costs under individual accounts

Political economy myths:

- Corrupt and inefficient governments provide a rationale for individual accounts
- Bailout politics are worse under public DB plans
- Investment of public trust funds is always squandered and mismanaged

The paper debunks these myths, implying that the arguments most frequently used to promote individual retirement accounts are often not substantiated in either theory or practice. It concludes that policy-makers must adopt a much more nuanced approach to pension reform than that offered by the common interpretation of *Averting the Old Age Crisis* (Orzag and Stiglitz, op. cit.).

More recently, a leading World Bank expert indicated that the Bank has four key concerns in working with clients on pension policy: (a) short-term financing and and long-term financial viability; (b) effects on economic growth; (c) adequacy and other distributive issues; and (d) political risk and sustainability. In response to these concerns and after review of the three main options for unfunded systems –mere PAYG reform, a rapid and complete shift to mandatory funded system, and a gradual shift to a multipillar scheme- the Bank clearly favours the multipillar approach, but in a pragmatic and country-specific manner. When helping to implement a pension reform the Bank fully takes account of country preferences and circumstances, bases its support on sound reform criteria, links the client assistance with knowledge management, provides training and other measures to enhance the reform capacity of a country, and seeks cooperation with other international institutions. In addition, the Bank has a comprehensive research agenda to improve the working of multipillar schemes, and the investigations include issues of coverage, administrative costs and annuities (Holzmann, 2000).

The above are examples pointing to the current issues and prospects for action on the part of the main proponent of reform. There is a general consensus about the need to adapt social protection to changing economic and political situations, taking into account the real needs of society in terms of economic security. In fact, the development of pension schemes and pension reform is affected by the values society places on the provision of income security in old age and the resources it is prepared to allocate for the purpose. Pension reform should seek simultaneously provision of full coverage with good governance, prevent poverty in old age, guarantee reliable levels of pensions for those on average incomes; all with minimum economic distortion or adverse economic effects.

But not only international financial agencies are commited in this endeavour: the International Social Security Association (ISSA) has been actively involved in promoting and conducting research, debates and publications about the future of social protection in general, and of pension reform in particular. Given the increasing polarisation of the debate concerning the future of social security, the ISSA launched the so-called *Stockholm Initiative* under the title *The Social Security Debate: In search of a New Consensus*. The objective was to promote a dialogue on questions relating to social security and how to adapt social security systems to changes in the economy and needs of society, in order to arrive at a new consensus. The deliberations centered on the reform of pension systems. A further step is the current project called the *ISSA Initiative*. This initiative comes within the framework of a lengthy task which which will see the development of a number of activities around a common issue : the quest for security in an unstable environment wherein the social contract between the State and its citizens is often called into question.

To conclude, the question of the most appropriate design of a pension scheme has to be weighted against all the other factors considered above, which will determine not only what is feasible and what is not, but also where the most desirable balance lies. The optimum structure would seem to involve a mix of DB and DC schemes (Gillion, 2000b).

The role of the actuary

Actuaries have played an important role throughout the development of social security and in particular the design and monitoring of pension provision and are the key professional advisers on occupational pensions –not just for their special skills in the application of actuarial techniques, but in their overall understanding of pension matters. The actuarial profession has been the first and ultimate point of reference to policy and decision makers to tackle the challenges arising from the increasing number of retired people who have to be supported by a reducing working population. Also, actuaries are well placed to design retirement provision to cope with changing patterns of working practice. Actuaries are the experts in assessing the long-term consequences of advance funding for retirement provision and the effect of different forms of pension arrangements. They can –and do- help governments, employers and individuals to ensure that future generations will have adequate, appropriate and –most importantly- secure pensioners to look forward to in their retirement (*Modelling the Future*, op. cit.).

Quite strangely the actuary has not had a leading role in the pension reform process. This is confirmed by the different issues (mainly of economic nature -the demographic aspects having been in general taken for granted and over simplified) raised in this paper and the experts who have been called upon to tackle with them.

The reason may be that the reform has been a high political topic for both, governments seeking solutions to the many problems posed by the economic crisis, including the financial problems of their social security schemes, and international financial agencies directly involved with economic development of concerned countries affected -in addition- by the so-called « social security crisis ».

Experts of international financial agencies are mostly economists. Having direct access to the political decision making levels, their point of view has prevailed over any other views from experts with different professional backgrounds. Their national counterparts have not been those mainly responsible for the operation of social security schemes, but rather economists from ministries of finance. But public finance economists, national or international, are not necessarily specialists in social security pensions.

In the UK, DB occupational schemes made use of actuaries from their earliest manifestation, usually dated to 1743, when the Scottish Ministers' Widows' Fund was established. The widespread use of actuaries by funded pension schemes (and indeed by many unfunded ones) was probably a significant factor in the reluctance of governments to legislate significant statutory requirements for pension schemes, other than for tax approval, until 1973, when the Occupational Pensions Board was established by the Social Security Act 1973 (Daykin, 1999). As in the UK, in a large number of countries actuaries are actively involved in both public, DB pension schemes and private, occupational mandatory or voluntary DB and DC pension funds. It would be a serious handicap for reformed DC schemes if those responsible for the planning and implementation of these schemes disregard actuarial advise for their short and long term operation.

The fundamental role of the acturary

The following final considerations are made to confirm observations made about the actuarial work in social security and in particular the role of the actuary in the reform process.

Needless to say, the actuary plays a fundamental role in a DB scheme, given the complex actuarial calculations required to estimate the appropriate level of contributions needed to pay for the benefits. The level of contributions, and the adequacy of the assets held to meet the future costs of the accrued benefit rights, need to be kept under regular review. With a PAYG DB scheme, regular projections need to be made of the future benefit costs in order to set contributions at an appropriate level or estimate future financing requirements.

In a funded DC pension scheme, in order to set an appropriate level of contributions which is likely to generate a target level of benefits, a similar type of actuarial calculation is needed to that for determining contribution levels in a DB scheme, albeit in some cases with a much simpler structure of benefits araising on the occurrence of different contingencies. Ideally, individual members of a pension fund should have access to regular actuarial calculations of their own projected benefits, with a view to determining whether additional voluntary contributions would be needed in order to give a reasonable probability of achieving the level of pension benefit they deserve. Actuarial valuations are required to test the viability of proposed expense structures at the design stage, and to assess the necessary level of provisions each year. A need for provisions frequently arises in respect of the expense structure. The need for provisions is likely to be even more critical where the contract or the pension fund structure offers potentially costly guarantees or options (these may sometimes derive from legislative requirements) (Daykin, 1998).

Actuarial advice is needed in respect of the pricing of annuities at retirement age (in other words, the conversion rate of accumulated savings into the form of a pension). The subsequent reserving requirements of the annuity portfolio and the corresponding process of asset/liability management are also areas of actuarial expertise. The actuary will also be involved in in settling the risk premiums, where appropriate, for life and disability cover (over and above the value of the accumulated funds In the individual’s account) and in monitoring all aspects of the experience of the scheme in order to update the technical assumptions (Daykin, 1998).

The ISSA promotes the role of the actuary in social security. In particular, activities carried out by its various specialised bodies dealing with the actuarial profession (the Technical Commission on Actuarial, Statistical and Financial Studies, its Advisory Board, the Association’s regular international actuarial seminars and conferences) place the specific role and functions of the actuary as a major player in the reform process. On the other hand, social security actuaries of the ILO regularly take part in technical cooperation projects devoted to social security reform in a number of countries.

Nevertheless, it would seem appropriate that the specialised professional scientific organization, the International Actuarial Association, devote particular attention and promote specific activities directed to enhancing the actuarial role in pension schemes and social security, including of course research and participation in the social security reform process. Not only would the actuarial profession be strenghtened, but this would also be of direct benefit to social security around the world.

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