

PENSION REFORMS AND ACTUARIES

BY **PIERRE DEVOLDER**

The future of pension is for sure one of the most important and difficult social challenges in many countries. Numerous reforms, especially in the first pillar of social security, have been launched these last decades, in order to respond to the aging pressure. Traditional collective state pension schemes were very often organized on a Pay As You Go (PAYG¹) basis whose sustainability is threatened, so future challenges are huge, especially for actuaries.

It is quite obvious that the demographic evolution, observed in nearly every country and characterized simultaneously by a decrease of the number of active people (persistent low levels of fertility rates) and an increase of the number of retirees (baby boom effect and increase of life expectancy) will induce major effects on these PAYG techniques. It is also well known that it is possible to finance a pension collective structure, using other techniques: mainly, the fully funding (FF) approach, where each generation saves for their own pensions. These FF schemes are less sensitive to demographic issues (even if the longevity risk affects equally both techniques) but are exposed to other forms of risk such as the market risk. The relative place given to these two techniques (PAYG or FF) in the general architecture of pension can be quite different from one country to another. >

¹ PAYG: a financing system in which the contributions paid by the workers, usually in a year, are directly used to finance the pensions to be paid to the retirees in the same year.



In some cases, the PAYG system has been closed and replaced by a new complete FF philosophy (for instance Chile); in other cases, PAYG is still present but a part of the social security contributions is invested in a FF vehicle (for instance Sweden); sometimes the first pillar in PAYG is small and a second pillar of pension organized on a sectorial or occupational basis represents a major part of the pension incomes (for instance The Netherlands). Other countries have also a first PAYG system and a smaller FF second pillar (for instance Belgium). Finally, in some cases, PAYG is nearly the only one (for instance France). This illustrates the huge diversity of pension arrangements in countries confronted to the same kind of demographic evolution. Independently of this financing mode, important new developments have emerged in terms of design of pension plans. For instance, classical social security PAYG systems are based on a Defined Benefit philosophy: the pension benefit is then computed in function of various parameters such as the salaries (last salary, average salary) or the duration of the career. However, nothing prevents from having other definitions of benefits based on different actuarial links between benefits and contributions.

A famous example of this type of system is the Notional Defined Contribution based on a Defined Contribution mechanism (fixed contribution rate) but still in PAYG. We can also refer to point systems, hybrid pension plans, cash balance, collective Defined Contributions, et cetera.

All these solutions illustrate the huge diversity in the pension landscape and the necessity to understand the underlying logic behind all these proposed mechanisms. This deep understanding is particularly important when reforming a pension structure if we want to take into account and balance multi-dimensional (and sometimes opposite) objectives such as: financial sustainability, social adequacy, fairness and transparency.

THE ROLE OF ACTUARIES

By definition, pension is an interdisciplinary topic, encompassing legal, actuarial, economical or tax points of view. As actuaries, we have of course to play a central role in the management of pension systems. Traditionally, pension actuaries are mainly focused on private and occupational pension schemes. However, we must also become a central stake holder in the reform of public social security pensions.

In this context, it seems relevant for actuaries to have a global view on the actuarial techniques applicable for all the pillars of pension. It appears also that many forms of integration between the different pillars occur more and more and request global analysis of a multi pillar system.

Actuary should highlight the common philosophy of the actuarial reasoning, behind any kind of funding or design of a pension plan. Among various examples of topics where actuaries must deliver strategic messages, we can think about actuarial neutrality in terms of retirement ages, automatic adjustment mechanisms of contributions and benefits, inter and intra generational fairness, socioeconomic segmentation of longevity, et cetera.

In this perspective we have tried to offer in our new book² a broad and up-to-date textbook on the underlying actuarial principles of pensions, covering social security schemes as well as private pension funds. We have deliberately presented the basic principles in a coherent and unified manner, applicable to public programs as well as to occupational pension plans. We have also included more recent techniques such as Notional Defined Contribution, point systems or hybrid schemes based on risk sharing mechanisms, less familiar to the actuarial community. The book covers also more classical topics such as a complete presentation of the individual and collective fully funded methods. <

² Pierre DEVOLDER/ Sébastien de VALERIOLA : *Actuarial Pension Funding Theory*, Springer -Verlag, 2025.