OECD Pensions Outlook 2022

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Foreword

The *OECD Pensions Outlook* provides an analysis of different pension policy issues in OECD member countries covering both public and private, defined benefit and defined contribution, pay-as-you-go and asset-backed retirement provisions. This sixth edition discusses how to introduce, develop, and strengthen asset-backed pension arrangements, the role that employers can play in their provision, and the implication of different fee structures on individuals saving for retirement and on providers. It also describes good practices for developing mortality tables and provides policy guidance on how to design, implement and continue the operation of non-guaranteed lifetime retirement income arrangements.

This report is the work of the pension unit in the Consumer Finance, Insurance, and Pensions Division of the OECD Directorate for Financial and Enterprise Affairs. National government delegates reviewed the different chapters, which benefited from their contributions, particularly delegates to the Insurance and Private Pensions Committee, and the Working Party on Private Pensions, as well as members of the International Organisation of Pensions Supervisors. The views expressed here do not necessarily correspond to those of the national authorities concerned.

The editorial team for this report was led by Pablo Antolin under the oversight of Flore-Anne Messy. Chapter 1 was prepared by Diana Hourani with inputs from Stéphanie Payet and Pablo Antolin; Chapters 2 and 3 by Stéphanie Payet; and Chapters 4 and 5 by Jessica Mosher. Editorial and communication support was provided by Eva Abbott, Pamela Duffin, and Liv Gudmundson. Romain Despalins of the Directorate for Financial and Enterprise Affairs provided useful advice and feedback.

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Editorial

Policy makers should continue to strengthen pension systems. The current financial and economic uncertainty as well as the rising cost of living may lead policy makers, regulators and supervisors to postpone reforms that could improve their pension systems. However, delaying needed reforms would put at risk the well-being of current and future pensioners.

Pension arrangements in which retirement savings are invested to accumulate assets that will finance pensions (asset-backed pension arrangements) have been growing in the last two decades in most OECD member countries. Total assets earmarked for retirement represented just over 100% of total OECD GDP at the end of 2021 (Pension Markets in Focus). The development of these asset-backed pension arrangements has contributed to multi-pillar pension systems where they complement, rather than substitute, pay-as-you-go public pensions. This allows for the diversification of the sources to finance retirement, making pension systems more resilient to the challenges they face, such as ageing populations.

Continuing with reforms to asset-backed pensions arrangements is therefore essential to improve retirement outcomes and the sustainability of retirement incomes for pensioners, and build more inclusive pension systems. The February 2022 OECD Recommendation of the Council for the Good Design of Defined Contribution Pension Plans provides guidelines to policy makers, regulators and supervisors to design asset-backed pension arrangements.

To help countries improve the robustness of asset-backed pension systems and build people's trust that their best interest is considered, the present edition of the *OECD Pensions Outlook* provides a series of recommendations on how to introduce, develop and strengthen such arrangements. The report highlights the importance of the institutional, legal and regulatory framework, the role that employers can play in the development of these arrangements, how fees can be charged to protect retirement assets and align them with the cost of the services provided, the need for regulators and supervisors to ensure the appropriateness of mortality assumptions, and the design of non-guaranteed lifetime retirement income arrangements.

Employers can play an important role in the provision of asset-backed pension arrangements. Reinforcing their role requires balancing the advantages (e.g. designing plans that fit the needs of their employees) with the potential challenges (e.g. cost, complexity and administrative burden). Improving the design of asset-backed pension arrangements also requires promoting low-cost and cost-efficient arrangements that will be reflected in the fees charged. However, policy makers and regulators need to consider the impact that different ways of charging fees may have on individuals saving for retirement, as well as the impact on providers.

The use of appropriate mortality assumptions is crucial to ensure the sustainability of retirement income for pensioners. Non-guaranteed lifetime retirement income arrangements can protect members from the longevity risk of outliving their savings without obliging further contributions from the sponsor to maintain benefit levels. However, accommodating these arrangements requires overcoming many practical challenges in the legislative and regulatory environment.

The OECD continues to examine different policies to improve the sustainability and resilience of asset-backed pension arrangements. Ongoing and future work will look at, among other subjects, how to incorporate Environment, Social and Governance factors in the investment strategies of pension funds, improve access for diverse populations, and improve individual outcomes for retirement income. As such, the OECD will continue to serve as an international forum to share different experiences across countries to identify good practices and provide policy makers and regulators with concrete options to address the policy challenges they are facing in improving their pension systems.

Carmine Di Noia

Director of Financial and Enterprise Affairs, OECD

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Executive summary

To help countries to improve asset-backed pension systems and build people's trust that their best interest is considered, the present edition of the *OECD Pensions Outlook* provides a series of recommendations on how to introduce, develop and strengthen asset-backed pension arrangements, the role that employers can play in the development of these arrangements, how fees can be charged to protect retirement assets and align them with the cost of the services provided, how to ensure the appropriateness of mortality assumptions, and the design and introduction of non-guaranteed lifetime retirement income arrangements.

Policy makers need to plan, implement, and monitor the development of asset-backed pension arrangements in accordance with the OECD Core Principles of Private Pension Regulation.

Planning: policy makers need to make sure that there is an adequate institutional and legal structure in place and that governance regulation and supervisory structures are set up, especially fit and proper rules for the members of the governing body. They also need to manage risks related to incomplete capital markets and inflation, have mechanisms in place to protect assets, and build support for change.

Implementing: policy makers should make sure regulators and supervisors have the right operations, powers and functions in place to regulate and oversee the new asset-backed pension arrangements, while clarifying to pension providers what their role will be. They should address issues like licensing requirements, contribution collection, record keeping and data reporting. They should also consider the different costs of reform and communicate about the reform to individuals.

Monitoring: policy makers need to address shortcomings of governance as they come along, implement measures to improve investment performance, foster competition to better align fees with the costs of the services provided, address the potential loss of trust of people in the pension system and the low financial knowledge of the population, and implement risk management processes.

Reinforcing the role of employers in the provision of asset-backed pension arrangement requires considering their motivations and the advantages and potential challenges that their involvement brings.

Employers' involvement in the provision of asset-backed pension arrangements is already important as they pay a significant share of the total contributions. The share of employer contributions exceeds 50% of total contributions in most OECD countries and 70% in ten countries. Beyond this role, the main motivation for employers to establish an occupational pension plan is to attract and retain employees.

Employer involvement has many advantages. They can bear some of the costs, design plans that match the preferences of their employees and implement behavioural strategies to increase employee savings. However, it is not without challenges. Some employers, in particular smaller ones, may be unwilling to establish pension plans because of the costs, complexity and administrative burden involved. Moreover, workers in non-standard forms of work may have more limited access to employer-sponsored plans.

Policy guidance to optimise employer involvement includes taking into account the structure of the labour market and labour force mobility; ensuring good conditions in regulations and financial markets; reducing barriers preventing employers from establishing pension plans; providing flexibility for employers to tailor the design of the plan within a regulatory framework that ensures non-discriminatory treatment across workers; promoting the use of behavioural strategies to foster participation and savings; facilitating the delivery of financial education in the workplace; and providing a framework for good governance.

Policy makers need to consider the distinct impacts that different fee structures may have on individuals and providers when setting or changing their fee structure.

Fees can be charged on contributions, assets, or investment returns. Different fee structures may be designed in such a way that the impact on individuals, through the assets accumulated at retirement and the net return achieved, will be identical. However, while the choice between different fee structures may be neutral in terms of cost for individuals, it may not be neutral for providers.

Providers may have an incentive to levy fees on assets or on returns rather than on contributions, except in the early stages of introducing asset-backed pension arrangements. Performance fees may help to align the interest of providers and individuals. Yet, they need to balance positive and negative performance.

Regulators and supervisors need to ensure the appropriateness of mortality assumptions, as adequate assumptions are crucial to ensure the sustainability of lifetime retirement income for pensioners.

Mortality assumptions are a key factor in determining the amount of assets that are needed to finance a retirement income for life. However, setting mortality assumptions is a complex process that involves many uncertainties. The appropriate model will need to consider economic and social contexts to better understand observed and expected trends. The assumptions should also be tailored to the population for which they will be used, and make sure that pensioners of all ages will be covered. Assumptions regarding future improvements in mortality need to be accounted for to avoid underestimating the life expectancies of pensioners. Sense checks and disclosure can help to ensure that the assumptions are reasonable and consistent. Regulators and supervisors will be able to use the guidelines put forward in this report to develop or assess the mortality assumptions used in the context of retirement income provision and ensure that pensioners will be able to receive their retirement incomes throughout their lifetime.

Introducing non-guaranteed lifetime retirement income arrangements has the potential to overcome challenges relating to adequacy, sustainability, and longevity protection, but requires overcoming many practical challenges.

Non-guaranteed lifetime retirement income arrangements provide retirement income payments for life by pooling the longevity risk of the members, but do not require any guarantees from the sponsor. As such, they have the potential to invest to earn higher returns – with the understanding that benefits will be adjusted to align with the assets available to finance them – while still mitigating the longevity risk that individuals face in retirement.

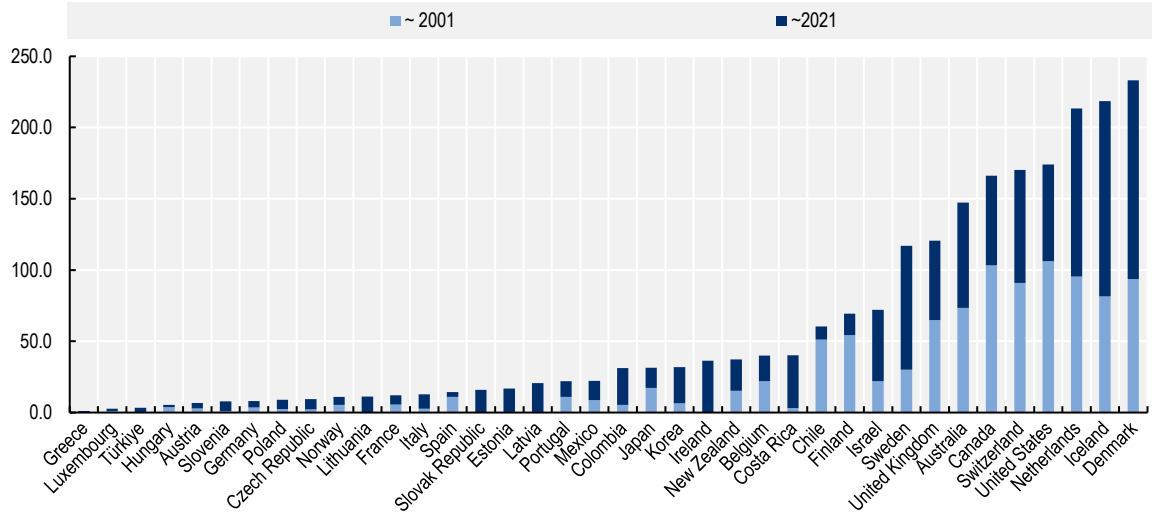
Nevertheless, experience in OECD member countries shows that there are many practical challenges that must be overcome to introduce these types of arrangements. Numerous different designs are possible, some involving significant complexity, and the appropriate choice will depend on the policy objectives prioritised. The legislative and regulatory environment also needs to accommodate such arrangements and promote them to both providers and participants. The implementation of these arrangements will need to address considerations around their introduction, operations and scale, and strong governance and effective communication are crucial for their long-term success.

1 Policy guidance on developing asset-backed pension arrangements

This chapter provides policy guidance on how best to develop asset-backed pension arrangements. It uses the experiences of OECD member countries to identify the key challenges and considerations ahead of introducing or reforming asset-backed pension arrangements, during the implementation phase of a reform, and when trying to maintain or strengthen existing asset-backed pension arrangements.

Pension arrangements where assets accumulate to generate a pool of savings earmarked to finance retirement have been growing around the world.[1] Many countries have undertaken pension reforms to introduce, expand or strengthen these asset-backed pension arrangements in recent decades. Countries' experiences present important lessons for future reforms. Some countries' reform processes were true success stories when faced with challenges, while others were less so. Some countries failed to anticipate important elements of an asset-backed pension scheme's success, forcing them to make further reforms down the track. Some have schemes that continue to be resilient and popular, while others have abandoned or downsized their asset-backed pension arrangements. To better inform future reform endeavours, it is important to explore what countries learned from their experiences – what worked well, and what they would have done differently in hindsight. While there is no recipe for success that would apply to all asset-backed pension systems perfectly, it is still possible to draw on countries' experience to offer options to policy makers wishing to undertake similar reforms in the future. Figure 1.1 provides a view on the increase of assets earmarked for retirement over the last two decades in the OECD.[2]

Figure 1.1. The growing importance of asset-based pensions (assets earmarked for retirement as % GDP)



Source: OECD Global Pension Statistics.

Developing asset-backed pension arrangements can take many forms. It could refer to introducing asset-backed arrangements where they are not already in place, such as by creating a defined contribution (DC) system or transforming an unfunded defined benefit (DB) system into an asset-backed arrangement. It could involve widening the population of an existing asset-backed pension system, such as introducing mandatory coverage or automatic enrolment, or creating schemes that cater to workers that are not already covered (e.g. the self-employed). Developing asset-backed pension arrangements may also refer to reforms that strengthen an existing system, such as by increasing mandatory contribution rates or introducing tax incentives that prompt additional voluntary contributions.

The chapter is structured such that it separately considers policy challenges at different stages of developing asset-backed pension arrangements.

The first section outlines what countries may need to consider ahead of introducing or reforming asset-backed pension arrangements. It explores what policy makers need to do so that they can announce a reform that is clear in terms of not only its design, but also how it will be well-managed and safe, and why

it is needed. It discusses different options in terms of institutional and legal arrangements for the pension industry, different supervisory structures to accompany reform, as well as mechanisms aimed at protecting pension assets. It also discusses how communication can help policy makers shift public opinion in favour of reform. These considerations are typically those that come before a reform starts, to ensure that strong institutions and a robust regulatory framework support the system's design.

The second section looks at the next stage in developing asset-backed pension arrangements and discusses challenges and policy considerations that arise during the implementation phase of a reform. These considerations include making sure policy makers have the right operations, powers, and functions to regulate and oversee the new arrangements. The section also discusses other practical challenges, like clarifying to pension providers what their role will be, dealing with the costs of reform, and communicating about the reforms to individuals.

The third section discusses key considerations for policy makers in maintaining and strengthening asset-backed pension arrangements once they are in place. It therefore represents the final phase in the chronology of developing asset-backed pension arrangements. This section focusses on practical considerations to ensure the success of the arrangements. It discusses the following main challenges that policy makers have faced in maintaining and strengthening asset-backed pension arrangements: maintaining high standards of governance of pension schemes; ensuring strong investment returns; aligning fees with the cost of providing the services offered; addressing loss of trust in pension systems and low levels of public knowledge about pensions; and ensuring strong risk management processes.

The purpose of this chapter is to provide policy makers with a comprehensive framework for developing asset-backed pension arrangements. It does not revisit some issues, such as the structure of pension systems or the potential design or parameters of different asset-backed pension arrangements (e.g. contribution rates, tax incentives). Instead, it focuses on practical considerations to ensure the success of the arrangements. By bringing together the lessons countries have learned along different phases of the process, the chapter aims to share real-world experiences in a comprehensive, all-inclusive product. Throughout the discussion, the chapter also draws on the best practices outlined in the OECD Core Principles of Private Pension Regulation (the Core Principles) (OECD, 2016[1]).

The final section provides policy guidance for future reforms to introduce and implement asset-backed pension arrangements, and to help policy makers maintain and strengthen existing arrangements.

1.1. Considerations ahead of introducing or reforming asset-backed pension arrangements

This section focuses on the practical matters policy makers may need to consider ahead of introducing or reforming asset-backed pension arrangements. It envisages a situation where policy makers already have a policy reform in mind and wish to ensure the success of that reform. It focusses on the most essential structural, legal, and practical considerations that are important to consider ahead of the reform.

This section first discusses the different institutional and legal structures available to policy makers in deciding how the pension industry will function. It then discusses the governance requirements that help ensure pension providers' management act in the best interests of members. Next, it considers how policy makers can address risks that may arise if financial markets are incomplete or lack depth, or in situations of high inflation. It then considers different supervisory structures to monitor pension schemes' compliance with legal requirements, as well as mechanisms aimed at protecting pension assets. Finally, it explores how policy makers can shift public opinion in favour of reform. Section 1.2 will explore other selected considerations that are concerned with the implementation phase of the reform.

1.1.1. Deciding on an institutional and legal structure for asset-backed pension provision

Policy makers have a role in determining the institutional set-up of prospective asset-backed pension arrangements. This involves a decision about which type of provider it will authorise to offer asset-backed pension plans, including aspects like cost, trust, and market concentration; what legal structures to put in place; and what types of services would be performed by different entities in the industry.

The question of what type of entity should provide retirement benefits ultimately refers to who should assume responsibility for asset-backed pension arrangements. This is a different question to licensing criteria for providers, which are concerned with verifying individual providers within an established system.[3] Rather, the main decision here is whether pension provision should be part of existing financial entities' functions, or whether to set up independent standalone pension entities.

The experience of OECD countries shows that there is a spectrum of ways in which pension provision is integrated into financial services entities. On one end of the spectrum is a situation where pension provision is simply provided by an existing entity such as a bank, mutual fund, or insurance company. An example is Korea, where occupational and personal pension contracts are part of the broad service offering of these companies. On the other end is a model of pension provision that has no ties to the rest of the financial services industry. Here, asset-backed pension providers are independent, standalone entities, which are not owned by providers of other financial services. The not-for-profit Dutch pension funds and the independent industry funds in Australia are examples of this model. Most OECD countries lie somewhere in the middle of the spectrum. That is, asset-backed pension providers are independent entities that retain ties to existing financial services providers. For example, in Latin America, most countries have followed the Chilean approach of allowing only specialised fund management companies to manage the mandatory individual retirement accounts. While banks, investment companies, and other financial institutions can own these pension entities, they are legally separate from the financial group to which they belong (Queisser, 1998[2]).

Different aspects may be considered when deciding which type of entity to authorise. Cost to members can influence the choice of pension provider. One consideration is whether potential providers have existing synergies they can leverage to keep costs down and minimise the disruption of transitioning to new provider types. That is, some providers have access to operational and financial frameworks through their existing lines of business, while others might have access to them through their parent company. This may help keep costs down at least in the short term, but the marginal benefits may be lower once the industry builds scale. Another important factor in determining whether the provider would deliver good value is whether they have a profit motive. In Australia for example, union groups were instrumental in setting up not-for-profit superannuation funds, known as industry funds, which have consistently delivered good outcomes at lower costs than for-profit superannuation funds. Public providers or low-cost providers may also be introduced to compete with other market players. This is what the United Kingdom did when setting up NEST. However, any efforts by public entities to set up public providers or low-cost providers should come with strict governance requirements to ensure the entity is independent and investment decisions are made at arm's length from the government (OECD, 2018[3]). It is also important to bear in mind that setting up public providers comes with a cost too, and prospective members, or ultimately taxpayers, will bear that cost.

Trust is also an important factor in determining which providers policy makers select. Providers need to instil confidence in the public that they will protect members' assets and transfer funds to their rightful owners. This is why having providers that the public is likely to trust is essential, but that question can depend on the context of the country. Some countries have a high level of trust in entities such as banks. For example, when Korea introduced voluntary asset-backed pension arrangements, the banks were a natural choice of provider because the public trusted them. In other countries, being able to show that entities are independent or not-for-profit helps to build trust in that system. Lithuania, for example, recently introduced a public annuity provider, and the authorities chose for this function to be performed by an

existing public entity, SoDra (the public State Social Insurance Fund Board), partly because of the public's trust in it.

Finally, policy makers may wish to avoid situations of market concentration when selecting the type of pension provider. In this respect, policy makers may wish to allow different entities to be pension providers, which can encourage competition and new players to enter the market.[4] Additionally, the threat of entry in itself can counteract dominance. Offering a range of pension provider types effectively shifts the choice to stakeholders. But the reality remains that it can be difficult to reduce certain players' financial dominance. Around the time that Estonia introduced asset-backed pensions, the banking sector was very dominant and the market was becoming more concentrated (Lillelaid, Tali and Auväärt, 2009[4]). The government therefore allowed a range of entity types, including non-bank financial services providers and independent entities, to enter the market. While this could have been a good way to bring in new players, today there are five fund managers in the second pillar, and the banks own four.

The choice of the type of legal structure of pension providers is also an important feature to consider. There are three main types: fund type, contractual type, and trust type. The fund type involves an independent entity with legal personality and capacity and thus its own internal governing board. Examples include the foundations and associations in countries such as Denmark, Finland, Italy, Japan, the Netherlands, and Switzerland, as well as corporations in Australia and Germany (e.g. *Pensionkassen*). The contractual type consists of a segregated pool of assets without legal personality and capacity that is governed by a separate entity such as a bank, insurance company, or pension fund management company. Examples of countries with contractual type arrangements are Chile, the Czech Republic, Mexico, Portugal, and Türkiye. The governing body of such a fund is usually the board of directors of the management company. The trust type is a legal form that has trustees who legally own the pension fund assets. The trustees must administer the assets in the interests of the plan participants who are the beneficiaries of the investment. Examples include Australia, the United Kingdom and the United States (Stewart and Yermo, 2008[5]).

A final consideration regarding the institutional setup is the types of services that different entities would perform within the asset-backed pension arrangement structure. Pension provision is not a single service, but rather, the accumulation of many distinct services, including collection, payment, investment management, and insurance. This raises the question of which entities should be responsible for carrying out the different services, but also whether responsible service providers should have permission to subcontract their tasks. There are different considerations that may be relevant to policy makers in determining the extent to which providers will have to integrate services. Having entities responsible for all or most aspects of pension services provision can simplify the system and avoid fees paid to various subcontractors. However, having specialised entities may be more cost effective, since having specialised service providers should result in a more cost-efficient, and therefore cheaper, service. It can also reduce barriers to entry that come with having to provide bundled services. Countries' experiences differ in this regard. Korea, for instance, requires different entities to be responsible for managing accounts and investing assets. In Chile, on the other hand, single providers bundle four different services: management of accounts, investments of pension funds, payment of pensions and the intermediation of the disability and survivorship insurance (Iglesias-Palau, 2009[6]).

1.1.2. Ensuring good governance

Good governance is key to ensuring that the assets in asset-backed pension arrangements are managed prudently and in the best interests of beneficiaries (OECD, 2018[3]). It is important to bear in mind governance needs when introducing or expanding asset-backed pension arrangements, to be sure that those who are responsible for the stewardship of pension assets are fit for the job, look out for the interests of members, and are open and transparent about what they do.

The goal of good governance is to minimise agency problems and avoid conflicts of interest in order to enhance investment performance and benefit security. Good governance is also a means of ensuring that

pension entities make prudent decisions without the government needing to make prescriptive regulation, helping to build trust among the public in any new systems. Conversely, a perception of poor governance is particularly damaging to pension entities and a system more generally, as trust is difficult to rebuild. As such, it is important that policy makers pay due regard to the governance of prospective pension entities as an essential component of any successful reform.

Good pension entity governance starts with ensuring that an independent board is responsible for the entity and for ensuring it will pay retirement incomes to members. The role of the independent governing body is outlined in Core Principle 3 (OECD, 2016[1]). The governing board should be the ultimate decision-maker, and therefore should be the final line of accountability. This means it would bear responsibility for strategic decisions such as investment policy, choosing services providers, and reviewing the entity's performance. Its role and responsibilities should also be clearly distinguished from those of the management team of the entity. Policy makers can rely on legal instruments to clarify the powers and duties of governing boards, with a particular focus on strategic decisions and functions such as the choice of investment policy, the selection and monitoring of key staff, and the monitoring and disclosing fund performance. They can also require that a pension entity's internal governance documents clearly define the responsibility of the board with respect to a mission statement, and require it to abide by clear and measurable objectives.

But having regulation requiring an independent governing board alone is not enough. The experience of OECD countries has revealed potential areas of governance weaknesses that could serve as lessons for other countries embarking on reforms (Stewart and Yermo, 2008[5]). This includes that the responsibilities of board members are not clearly defined, leaving the board with an unclear mission; excessive emphasis on stakeholder representation at the cost of expertise; and a failure to address potential conflicts of interest.

Having a mission statement is important to ensure the goals of a pension fund and the responsibilities of board members are clear (OECD, 2018[3]). This element is too often overlooked. For example, one survey of senior pension fund executives revealed that a lack of focus or clarity in mission was a main area of performance shortfall (Ambachtsheer, Capelle and Lum, 2008[7]). To address this issue, policy makers can require that pension providers' governance documents define a clear role and responsibility for the board with measurable objectives or operational goals (Clark and Urwin, 2008[8]). They can also encourage members of the board to annually restate that they are aware of their governance obligations or to conduct self-assessments (Stewart and Yermo, 2008[5]).

The composition of boards is another important consideration policy makers could address ahead of setting governance standards. A governing board should have the necessary expertise to make decisions on behalf of members and to constructively challenge the proposals of the management team. This means having a governing board with members whose combined experience includes the knowledge and understanding of all matters directly relating to the pension provider. This can include investment matters, risk management, funding policies, actuarial skills, and so on.

There is also a case for board members to be representatives of key stakeholders in the arrangement. Participatory rules governing the composition of pension provider boards are quite common in many OECD countries. For example, in Iceland, Belgium, Switzerland, and the Netherlands, the governing board of occupational plans must have an equal representation of employee and employer representatives. Employee or member representation helps ensure that the pension provider acts in beneficiaries' interest. Employer representatives in DB plans help ensure costs remain reasonable, investments are made prudently, and that any employer liabilities are kept under control. And as outlined in Core Principle 3.5, appointing members and beneficiaries of representative organisations can promote accountability to plan members and beneficiaries (OECD, 2016[1]).

However, stakeholder representation comes with risks to board performance. For example, a study of the performance of public pension fund boards in the United States showed that boards with higher relative representation by state officials or plan participants underperformed. They tended to make poorer

decisions in terms of private equity investments due in part to lower levels of financial experience (Andonov, Hochberg and Rauh, 2018[9]).

A potential role for policy makers is to take regulatory steps that strike a balance between stakeholder representation on boards with the best interests of members. For example, there is no reason an employee representative cannot also be someone who is skilled at investment decision-making and capable of challenging investment advisors. Policy makers can use regulation to enforce minimum standards of competence and experience in the governance of pension funds (Core Principle 3.6) (OECD, 2016[1]). This imposes a duty to search for appointees capable of making prudent decisions and holding their own with experts, putting experience and representation on an even footing. In the United Kingdom, for example, the Pensions Act 2004 provided that pension fund trustees should have at least a high-school education, knowledge and understanding consistent with their responsibilities, and be drawn from and represent the employer (plan sponsor) as well as employees (beneficiaries). There is evidence that such steps have improved the performance of board members in the United Kingdom (Clark, 2007[10]).

The potential for conflicts of interest is another key challenge policy makers can account for ahead of introducing or expanding asset-backed pension arrangements. There tends to be three main types of conflicts of interest that are particularly relevant to pension arrangements:

- Conflicts between the personal interests of governing body members and the interests of plan members. This type of conflict can arise when governing body members stand to personally benefit from their role. An example is the Swissfirst affair involving *Pensionskassen* in Switzerland, where pension fund managers were trading the same shares as the pension funds which employed them (Stewart and Yermo, 2008[5]).
- Conflicts between the duty a governing body member owes to members and their duty to other persons or entities. Examples include when board members are employer, employee or government representatives. When the employer is also the administrator or pays for the administration of the pension plan, they may wish to reduce administration costs, which could be in conflict with the members' interests to get high standards of administration. Alternatively, employer representatives could also have conflicts regarding funding decisions since an employer would be responsible for paying additional contributions. Employers could also receive incentives (such as favourable banking terms) if they select a particular pension provider or services provider for their retirement plan, which can affect their decisions regarding the plan. Equally, employee representatives may be inclined to favour the interests of employees, to the detriment of retired members who may be receiving benefits from a pension plan. Additionally, in the case of public pension entities, decisions of the members of the governing body nominated or appointed by the government could be subject to political interference. This is particularly important when it comes to investment decisions, since the pension entity may well invest more heavily in government bonds in the early days of operation or may be a co-investor alongside governments in certain projects for economic or social ends that do not necessarily result in good investment returns to members (Mitchell, 1998[11]).
- Conflicts that arise between the interests of members and the financial group to which a provider belongs and its shareholders. This issue is particularly pertinent to pension arrangements that are run on a for-profit basis.[5] For instance, a conflict can arise if the provider selects entities from the same financial group to perform a service. These situations raise questions of why the governing board selected a particular entity to perform a service, and how the parties agreed on a price for the service. The Australian Royal Commission raised these concerns after uncovering instances of significant dealing between entities within financial groups that involved little to no negotiation of fees charged by the relevant trustees (Commonwealth of Australia, 2019[12]). Alternatively, since some pension entities have a profit motive, the interests of their shareholders can conflict with those of members. For instance, the costs of marketing campaigns to grow membership can increase profits, which benefits shareholders, but their costs ultimately fall on existing members.

Policy makers may wish to consider how they would address potential conflict of interest issues ahead of announcing policies that introduce or expand asset-backed pension arrangements. Doing so starts with regulation that imposes a high standard of integrity and professionalism, but also clear criteria to disqualify members from the governing body (Core Principle 3.6). Additionally, it is essential that from the outset, governing bodies with members appointed by the government are subject to requirements that they maintain an arm's length relationship from the government, to avoid the perception of interference (OECD, 2018[3]). Having independent members in governing bodies can also reduce the risk of conflicts of interest arising. Policy makers can also take steps to promote risk-based internal controls such as an audit function, an internal conflict of interest policy, independence and impartiality standards, and whistle-blower provisions (Core Principle 3.11) (OECD, 2016[1]).

Additionally, as a check on all governance matters, policy makers can impose a high standard of disclosure and transparency on pension providers from the outset. Core Principle 3.13 requires that governing bodies disclose all relevant information to all parties involved (notably pension plan members and beneficiaries, supervisory authorities, auditors, etc.) in a clear, accurate, and timely fashion (OECD, 2016[1]). Disclosure of decisions in simple terms can encourage good behaviour, since the members and the public could hold the managing board accountable for any shortcomings.

1.1.3. Managing with capital markets that are incomplete or lack depth, or situations of high inflation

The experience of OECD countries has shown that introducing asset-backed pension arrangements can come with risks when capital markets are incomplete or lack depth, or in situations of high inflation. Namely, there is a risk that pension providers may not have access to the range of financial instruments they need to diversify investments and match the time structure of assets and liabilities. There is also a risk that inflation would erode the value of nominal bonds. While these are by no means the only risks facing newly established asset-backed arrangements, they warrant special attention because they relate to the economic context in which asset-backed pensions will operate. Therefore, the risks may call for bespoke, and sometimes transitionary, policy solutions.

This sub-section discusses how policy makers have mitigated those risks either by imposing investment restrictions or by nudging pension providers into particular asset classes.

The risk of having few financial instruments for pension providers to invest in

There is a risk that pension providers may not have access to a range of financial instruments with different risk/return profiles, especially when financial markets are incomplete or lack depth. Such cases may lead to a situation where pension providers are unable to diversify their investments due to a limited range of investment vehicles in which to invest. Furthermore, if the domestic financial market does not provide access to instruments such as equities, providers may not be able to achieve a high rate of return at an acceptable level of risk without investing abroad. A small or underdeveloped domestic market may also inhibit pension providers' abilities to match the time structure of assets and liabilities.

Related to the paucity of financial instruments in which to invest may be a situation where pension providers simply lack the skills and experience in investing in a range of financial instruments or offshore markets. This can further increase the investment risk that members or sponsors will ultimately bear. Notwithstanding, the experience of OECD countries has shown that having access to a range of financial instruments through a well-functioning financial system is not essential during the embryonic phase of asset-backed systems. But access to domestic or international developed financial systems certainly becomes more important as the system grows.

Regulating pension providers' investments while allowing the financial market and providers' skills to develop in parallel can be one approach to manage the risk of insufficient financial instruments being

available and the inexperience of pension providers. In this sense, asset-backed pension arrangements and financial markets develop in tandem, and policy makers gradually loosen investment restrictions over time as the financial market becomes more developed. This approach is in line with Core Principe 1.5, which states that "the development of well-functioning and transparent capital markets and financial institutions should be promoted to enable the development of new financial instruments and markets to support pension provision" (OECD, 2016[1]).

The experience of some OECD countries has shown that it is possible to devise a strategy to manage investments through quantitative restrictions in the early years of an asset-backed arrangement while also developing or deepening domestic financial markets. Quantitative investment restrictions tend to be maximum or minimum allowable thresholds, referring to asset classes, geographical restrictions, investment vehicles or degrees of concentration (OECD, 2015[13]). While the OECD generally recommends caution in implementing some quantitative investment limits, they can be justified in the early years of a system to protect members.[6] Under strategies that see asset-backed pension systems and financial markets develop at the same time, some OECD member countries have placed limits on investments in equities and international securities, with a view to relaxing those restrictions over time. This effectively required pension asset managers to start by investing in domestic fixed income assets like government bonds. If the starting point is an immature financial market, gains from financial sector development will initially be concentrated in the development of the government bond market, and long-term lending through banks. This would also help in developing the sovereign yield curve, which is an important part of capital market development (Barr and Diamond, 2008[14]). Having a yield curve can then help price corporate sector bonds and can contribute to the acceptance and use of indexed bonds (Roldos, 2004[15]). Over time, capital supply increases coupled with governments' loosening of any investment restrictions tends to lead to the development of the equity and corporate bond markets, asset-backed securities, and alternative investments (Impavido, Musalem and Vittas, 2002[16]). At this point, retirement savings managers will be able to access a greater range of financial instruments. In this respect, a reform that sees financial markets develop produces favourable conditions to realise the aims of the pension reform itself. Making such investment regulations part of a clear strategy that sees them ultimately being wound down can provide certainty to investors and can help build trust among the public.

Chile offers an example of a gradual approach to reforming asset-backed systems and financial markets at the same time. During the early years, investments by pension fund administrators (AFPs) were largely restricted to government securities, bank deposits, investment-grade corporate bonds, and mortgage bonds. In 1985, they were allowed to invest in equities, although the limit was set at 5% of the funds and with restrictions on the type of issuing firm they could invest in. As such, many AFPs invested exclusively in newly privatised firms. In 1989, the government lifted restrictions on equity investments and allowed AFPs to invest in real estate (Edwards, 1998[17]). Research focussing on this period has shown that pension funds' rising investment needs prompted new entities to be created and made the financial market deeper, more liquid, and more competitive (Holzmann, 1997[18]).

However, a downside to having investment regulations that concentrate retirement savings in bond markets in early years is that the portfolio would be more exposed to default risk and concentration risk. While many countries' bond markets offer relatively safe investment vehicles, history has shown that it is not always the case. In Argentina, for example, during the 1990s, many retirement savings portfolios were concentrated in government-issued debt, leaving pension funds vulnerable to government default.[7] By the time the government defaulted in January 2002, nearly 80% of Argentine retirement savings were invested in government securities (Kay, 2009[19]). Another downside to having an undiversified portfolio with a concentration in fixed income assets is that this can lead to low returns in the early years. Relative to a more diversified portfolio that includes instruments with higher returns, a portfolio of predominantly fixed income assets may yield a lower return, in particular during periods of prolonged low interest rates. The longer a portfolio has this investment strategy, the lower incomes will be in retirement, due to lower

compounding. Finally, investment restrictions inevitably hinder pension providers' governing bodies from pursuing unfettered investment strategies that they may view to be in the best interests of members.

Allowing retirement savings investors to invest offshore is another way to mitigate the downside risk of having few domestic financial instruments with different risk/return profiles, but comes with challenges. Investing in offshore markets can make it possible to achieve higher returns and greater investment diversification without having to wait for a domestic market to develop. However, in countries with less developed financial markets, it is more likely that domestic fund managers may lack the skills to invest in a range of instruments, including those that allow them to hedge currency risk. Some countries also took the view that allowing investments to go offshore can impede the development of local financial markets. This is why some countries like Chile and Mexico established jurisdiction-based investment limits in the early years of the asset-backed pension system. The limits ensured pension assets remained in the country to help bolster the domestic, albeit emerging, capital market, in line with an intention to use asset-backed arrangements to develop capital markets.[8]

However, jurisdiction-based restrictions present a dilemma for regulators if fear of capital flight conflicts with members' interests. On the one hand, regulators may have goals to develop a local capital market and potentially boost economic growth, while also preventing a potential increase in the cost of domestic capital due to capital outflows (Barr and Diamond, 2008[14]). On the other hand, they have a role to ensure members can access potentially better returns and are able to diversify their investments through access to foreign markets. Jurisdiction-based investment restrictions could be justified on the basis that fund managers may lack the skills to develop prudent investment strategies involving overseas opportunities. Otherwise, policy makers should exercise caution when imposing investment restrictions whose primary purpose is not to protect members' retirement income security. Notwithstanding, there is an argument that limits on overseas investment do not have a strong impact on retirement asset investments, at least in the early years of the schemes, due in part to home country bias and local investors' lack of familiarity in foreign securities and the use of hedging instruments (Vittas, 1999[20]).

The risk of high inflation

Another risk that policy makers may wish to account for is inflation risk. All countries face this risk, albeit to different degrees, given the long-term nature of retirement saving. High inflation erodes the real value of nominal bonds. As such, bursts of high inflation can cause a sharp decline in the value of retirement assets invested in bonds that are not fully indexed (Barr and Diamond, 2008[14]). The problem is greater when more assets are concentrated in nominal bonds and in the domestic market, or any single geographical market.

As a first best solution to manage inflation risk, governments that plan to introduce or expand asset-backed pension arrangements could focus on establishing a credible long-term macroeconomic framework to avoid circumstances of high inflation from the outset (Impavido, Musalem and Vittas, 2002[16]). But history has shown that some countries are not able to do so, or unexpected bouts of inflation emerge even after many years of stability. As such, policy makers can take steps to help pension providers manage and control inflation risk.

One way to help pension providers partially hedge against inflation risk is for governments to issue inflation-indexed bonds, shifting the inflation risk onto the issuer. While many OECD countries already issue such bonds,[9] many OECD and most non-OECD countries still do not and may wish to consider doing so ahead of further developments to asset-backed pension arrangements. Pension providers are natural purchasers of such bonds. The benefits of doing so was evident in Türkiye, which experienced double-digit inflation between 2017 and 2019. Despite having a high concentration of retirement savings invested in domestic government bonds, inflation-indexed bonds largely shielded assets from large devaluations.

Some countries have gone further than issuing standard inflation-linked bonds. Israel, for example, issues special inflation-linked non-tradeable bonds that are earmarked for pension fund investment. These bonds

offer a stable rate of return that is higher than regular long-term inflation-linked government bonds, effectively acting as a subsidy to the members of the asset-backed pension scheme. Pension funds are required to invest a minimum of 30% of their assets in these bonds (OECD, 2011[21]). Uruguay, on the other hand, issues wage-indexed bonds since the constitution links the minimum value of pension payments to nominal wages.[10]

Alternatively, to help pension providers hedge against inflation risk, policy makers can take steps that lift any unnecessary quantitative investment restrictions imposing minimum investments in fixed income assets. Stock values, like the values of underlying companies, can maintain a positive relationship with the economy, so are less likely to lose their real value. However, they can significantly increase the risk profile of investments.

1.1.4. Deciding on a supervisory structure

The discussion so far has focussed on how to regulate asset-backed pension arrangements, but it is also important to be clear about how the government will monitor a pension scheme's compliance with those requirements, and how closely. This is why, prior to introducing or reforming asset-backed pension arrangements, policy makers may wish to consider what type of entity will supervise the arrangements, and how that supervisor will function.

A starting point for this question is whether existing supervisory arrangements (such as the existing financial services regulator) are sufficient to oversee the asset-backed pension scheme, or whether a new regime is needed. The experience of OECD countries shows that both supervisory models work well, and the choice of supervisory setup may simply depend on the country context and any specific needs.

Some OECD countries opted for specialised supervision. This involves the government setting up a new supervisor that is independent from supervisory authorities of other entities, although they would work in collaboration and co-ordination with them. In general, countries with mandatory private pension plans have tended to set up specialised supervisors. This is particularly the case when specialised entities, such as standalone pension funds, are responsible for pension provision (Impavido, 2013[22]). However, questions of public trust can also be particularly relevant to this decision. For example, Chile created a new specialised supervision entity with the sole purpose of controlling pension funds and their respective management companies. This was because the public did not view the existing institutions very positively, and the authorities preferred having an entity the public might trust (Iglesias-Palau, 2009[6]). Furthermore, the authorities thought that there might be a conflict of interest if an entity supervised both the investors and the issuers of financial assets.

On the other hand, some countries chose not to set up specialised supervisors, instead integrating supervision of pension providers into existing authorities. Examples include many countries in the European Union, such as Germany, France, and the Netherlands. In some countries, the reason for retaining the existing supervisor is that plans were voluntary and the sector was small. Still, some countries, like the Netherlands, have a mandatory and large asset-backed pension scheme, but the supervisor is the Central Bank, which also supervises other financial services. Similarly, Colombia opted to have AFPs licensed, regulated and supervised by the Financial Superintendence of Colombia, which already supervised the banking system, insurance companies, and other financial institutions. Its decision was motivated by the fear that an additional supervisor might be subject to regulatory capture (Queisser, 1998[2]). Estonia, on the other hand, merged three separate financial supervisory authorities (for banking, securities, and insurance) into one (the Financial Supervisory Authority, FSA) just before it implemented the mandatory asset-backed pension system. The rationale was to make supervision more effective and ensure the same quality of supervision across all parts of the financial sector. It also allowed the FSA to control all actors of the pensions industry, which covered investment companies, banks, stock exchanges, and life insurance companies (OECD, 2011[23]). Australia has unspecialised supervision, but assigns

market conduct and prudential supervision to two different supervisory entities. This helps to have a clear focus in terms of the responsibilities, but requires significant co-ordination efforts.

Irrespective of the supervisor type, policy makers can bear in mind supervisory principles that will help build confidence in the system. Following Core Principle 6, such principles include (OECD, 2016[1]):

- the strategic objectives of supervisory oversight
- how supervision will be operationally independent
- the resources and legal power the supervisor will need to supervise effectively
- the supervisory regime that would apply to prospective pension providers
- how the supervisor would maintain the confidentiality of information.

1.1.5. Protecting the retirement savings of members

When introducing or expanding asset-backed pension arrangements, policy makers may wish to consider what mechanisms might be needed to protect the assets that underlie asset-backed pension arrangements. Some countries may already have protections in place through their existing legislation, but others may need to introduce changes to account for the new or reformed asset-backed pension arrangement. This sub-section outlines the most important protection mechanisms. They include legal provisions that protect the interest of members if pension providers or sponsors become insolvent, requirements to ring-fence assets, audit requirements, and updates to contract or judicial systems.

Having asset-backed pension arrangements does not immediately imply that members are protected from insolvency risk. Having insolvency legislation in place is important to protect the accrued rights of members and beneficiaries in the event that pension providers' or sponsors' functions discontinue. Such provisions should ensure that contributions are preserved, and that the law stipulates priority creditors' rights for members, sponsors, and pension funds and/or pension entities (Core Principle 7) (OECD, 2016[1]).

To support insolvency legislation, countries can also put in place insolvency insurance regimes. Germany, for example, has a pension protection scheme (PSVaG) guaranteeing occupational pensions in the event of insolvency of the employer. Colombia set up a guarantee fund backed by a state guarantee of retirement savings in AFPs. The law requires that AFPs contribute to the financial sector guarantee fund (FOGAFIN), which protects members' contributions in the case of an AFP's liquidation. The fund guarantees the mandatory contributions and the interest generated from them, as well as voluntary contributions up to a ceiling of 150 minimum salaries (Queisser, 1998[2]).

Related to insolvency protection is legislation that requires retirement savings to be ring-fenced. Having ring-fenced assets is beneficial in that it sends a key message to pension asset holders that their assets are safe and cannot be appropriated for other means. Ring-fencing provides that retirement savings are segregated from the assets of a plan sponsor, the assets of a pension provider, or other assets managed by a pension provider's parent company. However, there are many possible techniques for distinguishing or segregating one set of assets, liabilities or activities from another. These include methods for setting up separate funds, identifying and tracing particular assets and liabilities, as well as techniques for protecting one set of assets from the economic fate of the other, such as providing them with a privileged status in the case of bankruptcy (van Meerten, 2009[24]). In practical terms, ring-fencing suggests at the very least separate accounting for contributions, expenses, investments, taxation, and benefits.

Regulation that enforces audit requirements on pension funds can serve a whistle-blowing function, adding protection to retirement savings. Audit requirements of pension funds tend to refer to the review of financial statements, internal controls, the accounting and actuarial assumptions used by the plan manager, and so on, and help ensure the transparency and financial resilience of pension funds. However, auditors can also serve as a supervisor's eyes on the ground, with regulations often providing for a supervisor's ability to

contact the auditor to request clarifications or access the auditor's working papers. In some cases, supervisors can also require auditors to report serious regulatory breaches (Impavido, 2013[22]).

Finally, ensuring that existing legal structures will be sufficient to uphold the rights of members and beneficiaries is important. Core Principle 1.6 states that a country's legal system should enable the enforcement of contracts pertaining to private pensions (OECD, 2016[1]). In particular, there should be a body of ethical, professional and trained lawyers and judges, and a court system whose decisions are enforceable. Comparable standards should apply in cases where alternative dispute mechanisms exist.

1.1.6. Building support for change

A final, but essential, element policy makers may wish to consider ahead of introducing or expanding asset-backed pension arrangements is how to build support for change. The process of building public support can require a long lead time and significant investment in public education and stakeholder engagement. However, the experience of OECD countries has shown that failing to build an evidence base for change and obtain consensus from veto groups can be fatal to reform. This is why shifting public opinion in favour of change could start with a process that builds the case for asset-backed pension system reform, followed by consensus building efforts.

Having a public that accepts or even welcomes asset-backed pension system reforms has proven to be the optimal platform for success. An example of such a case is Sweden's introduction of the Premium Pension scheme. At the time, many Swedish people were already investing in mutual funds and benefitting from good capital market returns, raising interest in fund-based retirement saving. This prompted greater demand for having an asset-backed component of the pension system where the public can further tap into market returns. Ultimately, this led to a reform with bipartisan support. However, most countries have had to grapple with a public that is more resistant to asset-backed pension system reforms, going to great lengths to secure public acceptance.

Establishing independent inquiries is a good way to build a case for asset-backed pension system reform. Such inquiries are useful to explore the case for change and propose a roadmap for reform. Their independence can also add credence to what may otherwise carry a perception of partiality. For example, the UK Government asked the Pensions Commission to carry out an independent inquiry in 2004 to analyse the pension system against the changing socio-economic and demographic background and make recommendations for reform. The commission's findings were instrumental because they were persuasive and ultimately underpinned the reforms that introduced automatic enrolment and created NEST.

Public awareness campaigns can also help build society's acceptance of the need for change. They help disseminate information about any key risks due to existing systems and make the case for change. Countries such as Poland, Latvia and Slovenia undertook such campaigns before embarking on the process of introducing their asset-backed pension schemes. Romania contributed to the public dialogue by organising debates with representatives of society, including employers, pensioners, and trade unions. In Poland, policy makers relied on a public relations company to help with the relationship with the media (Chlon-Dominczak and Mora, 2003[25]).

Raising public awareness in a way that supports reform is not without challenges, however. Some countries' experience has shown that raising public awareness takes time and can have little or no effect (Chlon-Dominczak and Mora, 2003[25]). Furthermore, many people are simply myopic and uninterested in learning about potential pension system changes. Others may view pension systems as being complex, and poorly targeted communication can lead to additional confusion or misconceptions.

Different approaches can help address these challenges. OECD research on national pension communication campaigns identifies useful lessons to draw on (OECD, 2014[26]). For example, communication campaigns are efficient and effective when they target specific groups. This involves dividing a population according to perceived levels of awareness, interest, and willingness to engage and

take action. Then policy makers can deliver different messages according to the target group. Finally, the more focussed the campaign, the greater its chances of success. This is why any messages it delivers should be short and simple, with complex details broken down into component parts and delivered in phases. To avoid confusion, public communication campaigns that aim to raise awareness of the need for reform should not pre-suppose a particular reform. They should focus on the key message, which is the case for asset-backed pension system reform. Communicating details of policy design and how any new asset-backed pension system will function is a different message, so is better left to the implementation phase of the reform process.[11]

Policy makers may also still need to focus some efforts on building a consensus with key veto groups. Depending on the country context, it may be essential to engage with employer, employee, and pensioner representatives. According to a survey of experts and decision makers involved in several countries' pension reform processes, many policy makers view consensus between those groups as an important factor leading to the successful completion of the coalition-building phase. This is why any reform process is more likely to be successful if it brings together a range of political players and social partners (Chlon-Dominczak and Mora, 2003[25]). Active negotiation with social partners is more likely to achieve significant reform, as was the case under the Italian Dini reform. The government negotiated intensively with the social partners, culminating in a national pact that was agreed with the trade unions (Baccaro, 2002[27]). Similarly, in Denmark, the occupational schemes started in the private sector with contributions of 0.9% of salary but extended in successive bargaining rounds because of a political consensus between a coalition government and trade unions, who formed a 'joint declaration'.[12] Conversely, in Peru and Colombia, policy makers originally intended for a new asset-backed DC system to replace the public pay-as-you-go (PAYG) scheme. But the resistance of trade unions, the social insurance bureaucracy and other groups proved fatal to those plans. When the government ultimately introduced the DC schemes, they could only offer them as an alternative to the existing public pension scheme without any obligation for new labour force entrants to join them (Queisser, 1998[2]).

1.2. Challenges and policy considerations that arise during the implementation phase of a reform to develop asset-backed pension arrangements

This section considers the implementation phase of a reform. From the perspective of policy makers, this phase of a reform is distinct from the pre-reform phase, in that it comes with different needs and challenges. The implementation phase is less concerned with laying the groundwork for reform. The main considerations for policy makers during an implementation phase are making sure regulators and supervisors have the right operations, powers and functions in place to regulate and oversee the new asset-backed pension arrangements, and clarifying the role of pension entities. Policy makers also need to deal with other practical challenges, like dealing with the costs of reform and communicating about the reforms to individuals.

1.2.1. Revising the key functions of regulators, supervisors, and pension entities

When introducing or expanding asset-backed pension arrangements, policy makers need to consider how to operationalise the main functions that will underlie new or reformed schemes. Regulators, supervisors, and pension entities will all ultimately take on new roles once reforms are in place. As part of an implementation process, policy makers need to anticipate any new or revised functions any entity will need to assume. They also need to clarify what those functions should entail with enough time for any processes to be put in place. This section explores the relevant potential functions of government bodies and pension entities. It does not attempt to outline all the functions these entities would carry out, but rather, to highlight the ones that may warrant special attention as part of a process to develop asset-backed pension arrangements.

Operational considerations for regulating and supervising asset-backed pension arrangements

Policy makers should consider what operational capabilities government agencies might need to handle new or reformed asset-backed pension arrangements. While countries are likely to already have practices in place to regulate and supervise financial services providers, it is useful to revisit them in the context of introducing or expanding asset-backed pension arrangements.

Authorities may wish to consider what practical steps they need to take to ensure their own operations and systems are fit for purpose to support a reformed asset-backed pension system. Authorities implementing reforms should consult widely to understand what changes need to be made and take a realistic view concerning the time and resources needed to put them in place. Drawing on examples from countries that have needed to reform their operations and systems to adapt to new or reformed asset-backed pension systems, considerations could include:

- The introduction of personal identification systems and accounts. There may need to be a national strategy to enumerate workers and their dependents as well as employers (Holzmann and Hinz, 2005[28]). While some countries may already have such a number (e.g. social security number), others do not and may need to put in place an alternative enumeration methodology.
- IT systems that accompany the new reforms. For example, administrative systems within the civil service may be needed to keep track of detailed information, such as fund administration details and costs. A digital portal may also need to be developed to facilitate any reporting by funds. If a specialised public entity is set up as part of the reforms, that entity will likely need a comprehensive system built to support its operations.
- Procedures and staff to manage and implement the application of any preferential tax treatment of retirement savings.
- Any agencies or teams that need to be created to supervise the new entities.

The importance of considering operational capabilities should not be discounted, since experience has shown that reforms have at times stalled due to operational shortcomings. In Mexico for example, the government was obligated to reschedule a pension reform for six months because the government was not ready with the unique identification system. Furthermore, it was not ready with systems for the collection of contributions by the country's social security institute and their transfer to AFOREs (Grandolini and Cerda, 1999[29]).[13] Similarly, in Latvia, reforms were postponed to allow time for the administrative systems to develop (Holzmann and Hinz, 2005[28]). The introduction of the Swedish Premium Pension System (PPM) also necessitated a delay due to the necessary IT development.[14] The experience of countries has shown that not setting aside enough time to set up and test systems and new procedures can create reputational and operational risks, jeopardising the ability to deliver on a reform.

Policy makers may also need to set up systems of collaboration between government agencies. This is because asset-backed pension systems often involve overlapping areas of government responsibility, since the arrangements typically permeate financial markets, the tax system, and the social security system. Expanding asset-backed arrangements means policy makers may need to set up mechanisms for co-ordination between entities to ensure collaboration but also to delineate lines of responsibility. As an example of how this is done, in the United States, three agencies work in concert to enforce the Employee Retirement Income Security Act (ERISA), which regulates occupational pensions. These are the Internal Revenue Service (IRS), the Department of Labor (DOL) and the Pension Benefit Guaranty Corporation (PBGC).[15] Since the work of the DOL and the IRS often overlap, the two entities signed a memorandum of understanding (MOU) that developed collaboration procedures. That MOU guides whether issues presented in an investigation of employee benefit plans by one agency should be referred to the other agency, thereby avoiding duplicate investigations. There is also a manual to guide referrals of matters and collaboration between the two agencies.[16]

Sharing information of mutual importance between government agencies can also help with supervision, consumer protection, and policy making. Data sharing has its advantages, as it helps public agencies uncover correlations that tackle multi-dimensional problems but would otherwise be invisible. It also helps speed searching and processing when it comes to supervision (Law Commission, 2013[30]). With regards to policy design, administrative datasets are a rich source of demographic and financial information, potentially providing insights into behavioural responses.

There are some legal hurdles that restrict the flow of information between different entities that while justifiable, may need to be addressed. Privacy and security concerns are indeed legitimate and important to uphold. As such, policy makers have a role in considering how best to balance the need to protect individuals' privacy and the necessity for public authorities to carry out their functions. While this is not an issue that is unique to asset-backed pension arrangements, policy makers may need to re-appraise data sharing needs since these arrangements, by their nature, tend to touch different public administrations. One way to overcome these challenges is for the legal framework to allow authorities to share information under certain, clearly specified, conditions. Another way to promote co-ordination and information sharing, particularly when it comes to devolved supervision, is to have the chief supervisors of different agencies participate on each other's boards or create a commission of capital market supervision comprising the head of each supervision agency (Rocha, Hinz and Gutierrez, 2001[31]).

Licensing requirements

Legal provisions set out licensing procedures and prerequisites for pension entities to operate. In some countries, licensing is one of the main roles of the supervisor, particularly if there are a large number of small open funds. Some supervisors even have a distinct unit for this process (Rocha, Hinz and Gutierrez, 2001[31]). According to Core Principle 2.18, legal provisions should clearly state the requirements for registration and licensing of pension entities (OECD, 2016[1]). Licensing in most countries requires that the pension entity submits documents to the relevant authority prior to the start of operations, to prove that the entity has met its legislative requirements. Licensing practices can depend on a pension entity's construction and countries' own circumstances. But in general, many countries typically require that entities submit, where relevant, a business plan, governing plan, risk management policy, investment policy, funding policy, governance framework, details of technical skills, reinsurance arrangements, and proof of starting capital (OECD and IOPS, 2007[32]).

The legal provisions regarding licensing requirements may need to be revisited in the context of reforms that introduce or expand asset-backed pension arrangements. While many countries already have licensing procedures in place for pension entities or other financial providers, an implementation phase is a useful juncture to re-examine whether they continue to be appropriate and address existing shortcomings in a licensing regime. This is particularly relevant if the new arrangements are markedly different to what preceded them, so regulators and supervisors may need to reconsider the standards which they require pension entities to meet. For example, moving from a voluntary to a mandatory asset-backed pension arrangement might come with a greater sense of responsibility for the oversight over assets, and therefore a higher licensing standard to ensure sufficient technical skills that may not be within existing providers' capabilities. To meet the new requirements, existing providers may need to adapt their processes or take on new resources. This was the case, for example, in Italy with the introduction of automatic enrolment (Rinaldi, 2010[33]).

While it is important for licensing authorities to ensure the licensing process is to a suitable standard, timeliness also matters. Any licensing changes should ideally happen with sufficient time for pension entities to arrange their processes and obtain approvals to offer products. This helps ensure the smooth functioning of the reform and helps avoid uncertainties and perceptions of delay.

Additionally, revising licensing arrangements involves trade-offs in terms of complexity and efficiency. Licensing rules involve a balancing act between creating an environment that encourages providers,

particularly new entrants, to enter the market, while also protecting the rights and interests of plan members. In this regard, policy makers should consider revising licensing rules before reforming asset-backed arrangements, such that they create a fertile environment for providers and adequate competition without compromising on members' interests. For example, the Australian supervisor (APRA) tried to strike the right balance by not creating undue barriers to entry throughout the licensing process by creating a centralised licensing team; assisting new entrants via the public application form that lists the items required for a license application; promoting transparency, as the fees and costs of a license application are publicly disclosed; putting a statutory timetable of 90 days to assess a license application; and assessing new entrants against the same standards as incumbent providers.

Supervisory functions and frameworks

As part of an implementation phase, policy makers may wish to consider what additional steps might be needed to ensure the supervisor's capacity and functions are in line with the goals of a reform. Those steps can involve those that come with the setup of a new supervisory body, or indeed additional requirements on an existing supervisory body to ensure it is prepared for the new or expanded asset-backed arrangements. These include steps to ensure the supervisor is independent, proactive, well-financed, and professional, in line with Core Principle 6 (OECD, 2016[1]). Insulating supervisors from external pressure is also particularly important, since history has shown that times of crisis in particular have led to pressure on supervisors to exercise leniency or delay interventions (Rocha, Hinz and Gutierrez, 2001[31]). The supervisor also needs to set up processes to vet license applications, issue regulation, and have the powers to undertake tasks such as inspections. It may also take on new roles that are directly linked to the new arrangements. The supervisor may also need to put in place processes to publish reports and statistics. Depending on the scale of the asset-backed arrangements, these changes can call for a large number of staff, and particularly those with professional expertise in fields such as investment, finance, actuarial, and accounting (Hu and Stewart, 2009[34]). Existing structures may simply not have enough personnel with the experience, and may have to recruit and train extensively.

There may also be a need to set up or adapt a system to monitor and inspect the activities of pension providers and apply sanctions where necessary.[17] Monitoring activities can include processes to revise the reports of the financial status of pension providers as well as on-site reviews, and these functions can vary in their scope, objectives, and frequency. For instance, they can involve a review of all activities, financial statements and adherence to investment limitations. They can be regular or done on an ad-hoc basis in response to a complaint or signs of a problem. Relatedly, authorities need the power to apply sanctions for remedial and punitive purposes. Depending on the supervisory approach, supervisory authorities may need the power to direct pension providers to change their operations or commence civil or commercial proceedings (Rocha, Hinz and Gutierrez, 2001[31]). The punitive and enforcement powers should be transparent, and the supervisor should provide guidance and certainty to supervised entities regarding how and when these powers will be applied. Policy makers can consider and address such issues as part of an implementation process to asset-backed arrangements, to instil confidence in the system and provide transparency to providers about how their activities will be monitored and issues resolved.

Contribution collection and record-keeping

Implementing a reform that introduces or expands asset-backed pension arrangements involves a decision about how the government or private providers will administer key functions, like the collection of contributions and record-keeping, that underlie those arrangements. Different countries have arrived at different arrangements and centralised these functions to different extents, in line with what they intended to achieve.

Contributions can either be remitted to a government agency or tax authority to then be remitted to the pension entity, or they can be remitted directly to the pension entity. The argument for using a centralised government agency is that doing so would minimise costs to members if the government can leverage existing functions and processes. For instance, entities that already have procedures in place to receive transfers from other activities or programmes, such as a PAYG public system, may be able to expand those capabilities with little additional effort and take advantage of larger scale. However, a disadvantage may be that there could be a lag in contributions reaching pension entities. In countries like Mexico, Latvia, and Sweden, contributions are collected by relevant central agencies (the Mexican Social Security Institute, the State Social Insurance Agency, and the Swedish Pensions Agency, respectively) (Tapia and Yermo, 2008[35]). By contrast, when contributions are made directly to the pension entity, the contribution process can be simpler and faster. But the process can be more costly and monitoring compliance can be more difficult, since relying on pension entities means that additional processes are required to track contributions and identify shortfalls (Holzmann and Stiglitz, 2001[36]).

Greater digitalisation and innovations in data sharing are likely to diminish the differences between these two approaches. That is, the relative cost advantages of having centralised institutions being responsible for collecting contributions can fall as digital innovations are likely to increase the effectiveness of operations. The same goes for potential lags in contributions reaching pension entities, which is likely to be less of a concern as financial transactions become faster. Monitoring compliance with contribution requirements may continue to be a key issue, requiring data matching and processing to ensure the right contributions are being paid.

Policy makers can also consider who should be responsible for keeping records and the types of information they hold. Like with contributions, countries can choose to centralise record-keeping operations, but in practice, pension providers more commonly have that responsibility than centralised institutions. Exceptions include the Central Registrar for Securities in Estonia, the State Social Insurance Agency in Latvia and the Swedish Pensions Agency in Sweden, which keep centralised records (Tapia and Yermo, 2008[35]).

Where pension providers are responsible for record-keeping, policy makers have a role in setting regulation that helps ensure that record-keeping is accurate, kept for a reasonable amount of time, and that pension entities collect a minimum or standardised set of information. Establishing and communicating such rules before new asset-backed arrangements are in place can help ensure pension entities establish the right processes to collect the necessary information. It also helps ensure regulators and supervisors can monitor compliance with the arrangement's rules and uphold members' rights. For example, the Pensions Regulator in the United Kingdom provides detailed guidance of the information trustees are required to collect and maintain. It states that they are required to keep records of meetings and decisions, funding levels, member information, and details of their assets, contributions received, and all other payments to and from the scheme. This record-keeping makes it possible for the Pensions Regulator to uniquely identify a member to uphold their rights, and the standardised information makes it possible to build large datasets of member information.[18]

A related consideration regarding record-keeping is ensuring the security of data. The current environment of online accounts and processes presents new problems for pension entities. Namely, the risk of cyber-attacks and scams is a real threat to members' accounts. The rise in such attacks was particularly evident during the recent COVID-19 crisis, which showed a significant increase in malevolent and criminal activity around the withdrawal of retirement savings (OECD, 2020[37]). As such, it is more important than ever for pension entities as well as policy makers to be vigilant of such risks and proactively consider ways to protect their records from incidents, ahead of any reforms.[19] Relevant regulation can include requiring a risk assessment for data security and a cybersecurity plan for any entities managing retirement savings.

Data reporting

Policy makers should take stock of the data they would need to collect from pension entities to undertake key functions as part of the implementation phase. Supervisors and regulators collect data from pension entities for different reasons, and those needs can help determine what data it would collect and to what level of detail. The main reasons for data reporting include:

- to monitor the pension system and address any shortcomings in plan and/or entity performance. Collecting data allows regulators and supervisors to run algorithms that identify problems plans and/or entities may face, which is particularly essential in risk-based systems.
- to provide plan members with summaries of their entitlements, through benefit statements or tools like dashboards. Such platforms can also allow individuals to track their accounts, particularly inactive or lost accounts, which is a useful feature that is particularly salient in asset-backed pension arrangements.[20]
- for policy research and development. Data filings make it possible for policy makers to understand how well a system is functioning and delivering in terms of the adequacy of future retirement incomes.[21] It also makes it possible for policy makers to simulate and understand alternative policies or parameters, providing an essential part of planning for reforms.
- to inform public disclosure of details of plan and/or entity performance and other relevant information like fees and charges. Many supervisors and regulators provide plan and/or entity assessment and comparison services, which require standardised reporting by pension entities.[22] Reporting can also include information on Environmental, Social and Governance (ESG) investments.
- to evaluate supervisory work, make necessary changes to their own procedures and deploy resources to address key issues.

Policy makers face a trade-off between the benefits and the costs of data reporting. As part of a reform process, policy makers may wish to reflect on their ongoing needs and priorities, and the data reporting that would support those ends. But when determining the extent of those needs, they ultimately face a trade-off between the amount of data needed and the costs of complex reporting. Data that is more granular than what is needed for the most essential purposes, such as compliance, are certainly valuable. They provide more information to members and useful insights into different reform scenarios using real-world data. But excessive disclosure requirements can lead to concerns about over-regulation, and can drive up costs to members if the requirements are too onerous. As such, policy makers should weigh these factors in setting reporting requirements.

Policy makers may also wish to consider setting up automated reporting processes or digital reporting platforms to reduce the burden on pension entities. For example, the UK's Pensions Regulator has an online portal called Exchange, which makes it possible to conduct its reporting requirements online. The implementation phase of a reform would be the ideal time to launch tools such as these, so that pension entities can familiarise themselves with them and prepare their reporting processes accordingly.

Policy makers should communicate any reporting requirements to pension entities ahead of the commencement of new schemes, so that pension entities are aware of their responsibilities and set up processes to collect and report information. While reporting requirements certainly do change over time, having a good idea of reporting needs from the outset gives pension entities greater certainty of reporting costs and avoids them having to change systems and processes over time.

1.2.2. Costs of developing asset-backed pension arrangements

Another practical consideration when developing asset-backed pension arrangements is recognising and managing the costs of the reform. This is an important element of the implementation phase, since that is

when the costs of reform will arise, and policy makers need to take steps to finance them. Reform costs are inevitable, whether they are due to the deficits arising from structural reforms or administrative costs of the reforms themselves. Bearing in mind that there is no perfect approach to managing costs, this sub-section explores the practical considerations for policy makers that come with the process. It discusses how costs arise, how OECD member countries have financed them, the sources of uncertainty, and how costs can fall on different groups of individuals disproportionately.

The magnitude of any costs depends on the type of reform being undertaken. Therefore, it is relevant to distinguish the three main models of reform that expand asset-backed pension arrangements: substitutive reform, where an unfunded public system is closed and replaced by an asset-backed system; parallel reform, where the public system is not closed but reformed, an asset-backed system is created, and the two compete against each other; and mixed reform, where the public system continues and supplementary asset-backed arrangements are added or expanded to complement the public pension system (de Mesa and Mesa-Lago, 2006[38]). The direct costs of a structural reform depend on the extent to which an asset-backed system substitutes a PAYG system, or the extent to which contributions are diverted from public pension systems to asset-backed systems, creating a fiscal deficit in the public system. In this case, government revenue declines while expenditure is maintained in order for it to honour the claims of workers who have contributed to the old system, making implicit debt explicit. Substitutive reforms, therefore, tend to have higher costs than reforms that create mixed system.[23] The OECD *Recommendation for the Good Design of Defined Contribution Pension Plans* (2022[39]) recommends that PAYG and asset-backed pension arrangements should complement each other and not compete.

While the main costs arise due to a fiscal deficit, reforms also come with administrative costs. Although a reform from unfunded pensions to asset-backed pensions may reduce the role of the state in the pension system, new or reformed asset-backed arrangements can expand it in terms of regulation, supervision, guarantees or financing (de Mesa and Mesa-Lago, 2006[38]). Administrative costs can arise notwithstanding the type of reform, substitutive, parallel or mixed. These costs are important to bear in mind, and can be large, particularly where significant reform to government administrations is needed.

Reform costs can be financed through different options. These include raising higher taxes, diverting funding from other government expenditure, and issuing new debt. No matter how the costs are financed, doing so is complicated by the possibility that current or future generations may, at least in the short term, pay twice – for the pensions of today's retirees and for their own future pensions.[24] And the time path of the cost burden can fall on different generations depending on the financing mechanisms:

1. defaulting on pension promises, such as by reducing benefits, means current generations bear the cost of reforms
2. increased contributions or taxes in order to finance the pensions of the current generation means that the following generation bears the cost
3. financing the reform through public borrowing means that potentially many successive generations bear the cost (European Commission, 2001[40]).

Countries may use a combination of financing arrangements depending on political and fiscal considerations. For example, in Chile, the government used a mix of financing sources for its reform. The government issued financial instruments called recognition bonds to each worker who switched to the new system to recognise rights from the PAYG system.[25] The government used its resources to finance the fiscal deficit due to the reform, with expenditure averaging about 3.25% of GDP per year (Superintendency of Pension Fund Administrators, 2010[41]). In the years following the introduction of the asset-backed scheme, the deficit was mainly financed through public savings, which in turn came from tightening up other expenditure and levying a temporary tax. The government also sold public debt to the pension funds.

The cost of asset-backed pension arrangements may be hard to quantify, and a challenge for policy makers throughout an implementation phase is accounting for the cost of uncertainty itself and managing it.

Uncertainty can stem from system design features. For example, many Central and Eastern European countries gave workers a choice between being part of a reformed public pension scheme alone or having a mix of public and private schemes. Similarly, in Colombia, members can switch over time between the new and old systems, making membership estimates uncertain during the implementation phase and into the future. The availability of such options comes at a cost, like any optionality around financial offerings would, but also because it creates a greater administrative burden to the government. Policy makers should therefore consider the financing of such costs as they would other costs.

The administrative costs of asset-backed pension arrangements themselves ultimately often fall on members, in particular initial cohorts. When asset-backed pension arrangements are starting out, there is a risk that the initial costs of the arrangements are larger than the ongoing costs. This is in line with the experience of many OECD countries, such as the Latin American countries that introduced DC arrangements to replace PAYG public pensions in the 1990s (Valdes-Prieto, 2001[42]). As such, there can be a role for policy makers to consider mechanisms that smooth these costs over time. One such mechanism came in the form of a loan from the government to set up NEST as a default low-cost provider in the United Kingdom. The Department for Work and Pensions provided NEST with a loan drawdown facility to cover its up-front costs, with ongoing repayments to be made from fees.[26] Having this mechanism makes it possible for NEST to repay more of its loan as its asset base grows, thereby spreading the costs over its ongoing membership and not disproportionately burdening initial cohorts.

Finally, indirect costs can also arise if a reform makes one group of people financially worse-off than another. Asset-backed arrangements do not necessarily lead to unfavourable distributional impacts, but depending on the design of pre- and post- reform pensions, reforms can lead to a change in the actuarial fairness of a system. In practice, many reforms that involve a shift towards greater actuarial fairness are achieved through transitions from DB to DC arrangements. Greater actuarial fairness can lead to a removal of redistributive features, which in turn can lead to adverse distributional impacts. For example, DB systems often have built-in redistributive effects – from one generation to another, from people who die young to those who die old, from people on one part of the income distribution to another, and typically men subsidise women because the latter tend to have longer life expectancies (Deacon, 2007[43]). By contrast, little redistribution takes place in a pure DC system without longevity pooling. Moreover, a shift to a more actuarially fair system can disadvantage women who tend to live longer than men (Lindbeck and Persson, 2003[44]).

1.2.3. Communication about reforms

Good communication about reforms is essential to a successful implementation phase. Even the most considered and carefully designed reforms can fail if they are not communicated appropriately. Communication as part of an implementation process should be distinct from communication which aims to build the case for reform and obtain the backing of stakeholders, as discussed in Section 1.1. The two phases could be linked, where one introduces the potential reforms and another links back to it to remind people about the change and explain their new responsibilities or choices, where relevant. But the key messages should be distinct. This sub-section explores the main practical considerations for policy makers who need to communicate with the public the details of reforms and any choices that people need to make, once a reform process is underway.

The experience of OECD countries provides lessons for future reform campaigns that policy makers may undertake as part of an implementation phase. Certainly, communication is not homogenous and there is no ‘one-size-fits-all’ communication strategy. However, there are principles that can apply in a general sense and which future reformers can adapt to their own situations. These principles are that:

- people respond to clear and simple messages
- people need support to make choices

- policy makers can use different distribution channels to disseminate messages and tailor them to audiences
- policy makers should control the narrative about the reform and ensure the messages do not lead to unrealistic expectations
- timeliness makes communication campaigns more effective
- communication should be in line with any default rules
- employers may need specialised communication to understand their responsibilities.

People respond to clear and simple messages

A lesson from many reform campaigns is to communicate clearly and simply and not to introduce complex issues that can overwhelm people (OECD, 2014[26]). It applies to any communication about asset-backed pension arrangements such as pension statements, projections, or communicating on investment strategies (see, for example, OECD (2020[45])). In the context of reforms, communications should focus on expected retirement incomes rather than rates of return, since a rate of return to savings is a concept that is difficult for people to process. It can create uncertainty and sometimes wrong decisions, working against the purposes of reforms (Rudolph, 2019[46]). Rather, concepts like portfolio performance should be communicated more simply, using intuitive methodologies like traffic lights or ratings systems (OECD, 2020[45]). With these principles in mind, policy makers should tailor their communications to individuals, notwithstanding the communication channel, so they can better understand any changes and choices they need to make.

In this context, governments should also not overestimate their own abilities to communicate effectively with individuals. The experience of some countries when introducing campaigns is that, upon discovering the difficulty of communicating with the public, particularly using accessible language and through different channels, they had to call on external support. Estonia, for example, identified the difficulty of doing so, calling on an external provider to bridge the communication gap with the public (OECD, 2008[47]). This experience is a reminder that governments should not shy away from seeking help from communication experts to help communicate complex concepts effectively to the public.

People need support to make choices

Communication is crucial when people need to make choices affecting their retirement incomes. Populations generally have low levels of financial awareness, knowledge, confidence, and skills to make choices on their own, particularly vulnerable groups. During a reform process, a priority for policy makers is therefore to help such groups navigate the choices and added risks that come with saving for retirement.

Countries' experiences illustrate the importance of comprehensive communication and the value of financial literacy initiatives. They show that campaigns that provide simple, digestible information about the options available can genuinely help fill information gaps and build people's confidence to make decisions. They also show that explaining clearly how to make choices can make people more likely to take action. Providing information that helps boost people's financial literacy can also help them navigate essential financial matters such as debt, savings and insurance (OECD, 2014[26]). For example, when Sweden introduced its asset-backed premium pension, there was a huge marketing initiative prior to launching the platform that centred on individual choice. The goal of the campaign was to promote active selections, facilitate savers' management of pension funds, and increase their knowledge of premium pensions and fund management. The goal was also to make sure that all insured persons gained an understanding of the system and had a basic knowledge of how the system works and what consequences it has for their own pensions (Riksrevisionen, 2004[48]). The Swedish Premium Pension Authority, which was responsible for the communication campaign, provided savers with a selection package containing a catalogue with information about the different available choices and instructions outlining how to make

selections. At the same time, private companies launched advertising campaigns and other forms of consumer communication to encourage as many savers as possible to choose their fund. The campaign was successful, resulting in 59% of people making an active choice and a further 20% of people reporting 'consciously' having chosen the default AP7 fund (Regeringskansliet, 2017[49]).

Having in place projection and comparison tools for people to use as the new systems are being introduced can also be particularly beneficial. Projection tools, particularly those which are personalised and combine information regarding potential incomes from many different retirement sources, can help people understand how reforms may affect them and can help guide any decisions they need to make, such as whether to participate in asset-backed arrangements and how much they need to contribute to achieve their retirement income goals. Similarly, if the reforms come with choices, such as between providers or investment strategies, user-friendly comparison tools can help guide people's decision-making. Reform times present unique opportunities to engage people and get them to make a good choice, since people tend to engage rarely with their asset-backed pension arrangements.

Regulators and supervisors may have a role in ensuring accurate and effective tools are available to the public. They may make such tools available themselves, or pension entities or other services providers may do so. When a country's authorities make the tools available themselves, they naturally have greater control over the content and can better ensure its accuracy. They may also have the advantage of greater visibility across different pension entitlements from other parts of the system, which means they might be able to provide a richer set of information such as a pensions dashboard. Alternatively, if pension entities or other private sector providers make available such tools, the role of policy makers is typically to make sure the information they provide is accurate and standardised to the extent possible across different providers. In this regard, they can make use of guides such as the IOPS Good practices for designing, presenting and supervising pension projections (IOPS, 2022[50]).

Finally, policy makers may wish to regulate any advice or guidance that third parties provide to ensure people have the right support to make choices about new asset-backed arrangements. Advice given by external parties, whether they be comparison sites or financial advisors, can also be crucial to the success of reforms. As such, as part of a reform, policy makers may wish to revise any financial advice regulation to ensure it remains transparent and discloses clearly any commercial interests (OECD, 2016[51]). Alternatively, the government may choose to directly participate in this area by making available a publicly funded, independent advice service. This is available in the United Kingdom, whose Pension Wise service provides free advice to guide people in selecting retirement income products.[27]

Policy makers should use different distribution channels to disseminate messages and tailor them to audiences

There are many ways to communicate with the public about reforms. Traditional distributional channels include television, radio, newspapers, and press releases, as well as printed material such as information booklets and posters. But with the rise of the Internet and other technology, and people's increased ease of doing business on it, information can be more easily disseminated through advertisements, pop-ups, and social media. Social media in particular offers an opportunity to adopt a more dynamic communication strategy. Namely, information on age, gender, profession, and educational attainment can make it possible for policy makers to personalise content to people depending on what they are more likely to understand and respond to. Social media also speeds up the messaging and any necessary changes that need to be made to communications. Social media also makes it possible to create two-way conversations, where users can use a reply function to ask questions and receive answers within a social media post. However, doing so requires significant resources.

Different distribution channels should also be used to tailor messages to audiences. As the OECD Recommendation of the Council on Financial Literacy emphasises, policy makers should identify relevant target audiences and have effective initiatives to reach them. They should also account for the specific

needs of particular sub-segments of the target groups (such as lone parents, elderly women, or young entrepreneurs). This means taking into account a wide range of cultural, religious and socio-economic factors that may impact on such audiences' financial literacy and well-being (OECD, 2020[52]). In doing so, policy makers can send tailored messages that account for people's specific strengths and preferences. Leveraging more recent technological tools, such as social media and big data can help segment an audience to send more tailored messages. Furthermore, working with trusted stakeholders such as employers and social partners, who have an expert understanding of a target group, can be a good way for policy makers to understand their audience's needs and to reach that group.

Engaging the press also remains an effective way for governments to reach out to the public. The government can engage the mainstream press so that it places articles, interviews or advertisements in traditional media outlets to raise awareness about any changes. While traditionally press releases have been the primary avenue of releasing information to the press, direct engagement can also be particularly beneficial. In-person meetings and information sessions can also be a good way to update the press of policy reforms and answer any questions, to ensure the information they disseminate is accurate. As an example, when the Lithuanian Government created a centralised annuity provider, the government hosted information sessions to the press with a trusted partner, in this case the OECD, to explain the details of the reforms, explain concepts such as the importance of longevity protection, and answer any questions. Similarly, when Poland introduced individual accounts in the 1990s, it focused on educating journalists in the initial stages, who in turn explained pension changes and answered people's questions in newspapers (OECD, 2008[47]).

Policy makers should control the narrative about the reform and ensure messages do not lead to unrealistic expectations

Policy makers should control the narrative about the reform to ensure the messages that the public receives are accurate. Losing control of the narrative can happen, for example, if people mix up the messages provided by the government and those from providers. The experience of some OECD countries has shown that external stakeholders' messaging can overshadow the government's messaging. For example, in Hungary, government information was overshadowed by a high-level advertising campaign by private pension providers. But some countries actively addressed these risks. In Estonia, for example, private providers agreed to postpone their advertising until the government's communication campaign was completed. In Poland, the government went as far as restricting the marketing campaigns used by pension providers during its own campaign (OECD, 2014[26]). However, in the age of social media and mass information sharing, it is more important than ever for policy makers to actively promote its own narrative when it comes to a reform. Social media is a powerful messaging force, and one which may not always disseminate correct information. As such, policy makers dedicating resources to actively participating in social media dialogue can help counter the effects of misinformation to some extent.

Relatedly, the information that policy makers put in the public domain should not lead to unrealistic expectations. In particular, areas of uncertainty should be clear when reforms lead to a system with uncertain outcomes, as is often the case with DC arrangements. For instance, when Chile underwent a systemic reform in favour of a DC asset-backed pension arrangement, the communication with the public emphasised the financial potential of the new system. It promised that people could attain up to a 70% replacement rate from the new asset-backed pension arrangement. The expected returns from asset-backed pension arrangements fell over time, but the promise of a 70% replacement rate remained embedded in the public's expectations, leading to a loss of trust in the system (Mesa-Lago, 2020[53]). Such experiences highlight the importance of careful messaging that does not raise expectations against the backdrop of an unknown future. Instead, policy makers should communicate with the public about risks and uncertainties in a simple, understandable, and clear way.

Timeliness makes communication campaigns more effective

Starting communication campaigns early and giving people time to process information can add to a reform's success. Given the priorities of a reform, policy makers can overlook the importance of timely communication and underestimate its relevance to the success of asset-backed arrangements, particularly when those arrangements rely on people making choices, such as taking up voluntary arrangements or opting out. The experience in Türkiye, for example, was that communication about auto-enrolment may have been rushed when reforms were introduced, leading to strong negative opinion from organised groups and high opt-out rates (Rudolph, 2019[46]). Similarly, when Italy introduced auto-enrolment, the communication did not happen until right before the new rules were put in place, making it feel rushed (Rinaldi, 2010[33]). This potentially increased people's anxiety about the changes and led them to opt out. The UK's automatic enrolment campaign, on the other hand, relied on years of preparation and careful crafting, which likely contributed to its success (Rudolph, 2019[46]).

There are no firm rules when it comes to the optimal timing of communication campaigns, but the experience of OECD countries reveals the importance of careful planning and giving the public time to process information. Campaigns that require people to make choices, such as opting out or taking up voluntary arrangements, benefit from large campaigns that reiterate messages over time to instil confidence in the reforms. Enough time also makes it possible for policy makers to take stock of public opinion and people's understanding of reforms and fill any information gaps with new or revised messages. This was a part of the campaign to introduce individual accounts in Poland. Once the campaign started, the Office for Pension Reform took stock of people's understanding and found shortcomings in the effectiveness of the campaign. It responded by changing its media plan and marketing design, which led to focus groups showing a greater level of public understanding (Chłoń-Domińczak, 2000[54]). Similarly, where reforms involve complex messages, phased campaigns that build on information over time can help break up multiple messages and make them more digestible (OECD, 2014[26]). Different phases can also target different audiences. For example, an initial stage could focus on opinion leaders, who can subsequently provide independent information and advice to others (OECD, 2008[47]). These potential benefits can only be achieved through campaigns with longer lead times.

Communication should be in line with any default rules

Where a default exists, the communication should be in line with the default rule. Defaults can work as a nudge, particularly when they contribute to improved retirement outcomes. Communication about reforms should be in line with the intended nudge. The experiences of Italy and the United Kingdom when introducing automatic enrolment show that the different outcomes in the two countries are to some extent linked to the different messages communicated regarding the default.

In Italy, the communication mainly focused on encouraging people to make an active choice, which may have contributed to a higher opt-out rate. Employers were asked to inform their employees of the auto-enrolment mechanism, specifying the possibility to opt-out. Employers also had to ask each worker to complete a form issued by the relevant ministries reporting whether or not they accepted the change. A broader campaign also focused on the importance of choosing, with slogans like "choose today thinking about tomorrow" (De Benedetto, De Lorenzis and Ales, 2008[55]). The main downside of such messaging and specifically requesting that employees make choices is that it does not accord with auto-enrolment's reliance on inertia.

Conversely, the communication by the UK Government regarding its auto-enrolment scheme focused messages on the benefits of being part of a pension plan. The government released a guide, which aimed to instil confidence in the automatic enrolment scheme. The guide suggested simple, consistent language intended to evoke a particular response from workers. For example, so that people feel "this is being done to help me, but I can make choices if I want to", the guide suggests messages such as "You will have your own pension pot and can make choices about it if you want to (but you don't have to)" (Department for

Work & Pensions, 2014[56]). The “we’re all in” campaign similarly focused messages on being covered and featured advertising with people stating “I’m in”. Making the main focus on being covered rather than the opportunity to opt out helped focus the public on the benefits of coverage (Department for Work & Pensions, 2014[57]).

Employers may need specialised communication to understand their responsibilities

Policy makers have a role in communicating with social partners to help them understand their responsibilities under reforms. While communication on reforms is often focused on individuals and their choices, it is important that policy makers communicate with different groups who have new responsibilities arising out of a reform. These include employers, whose new responsibilities may include selecting and contributing to new plans. As such, they need to understand and prepare for any changes.

Employers may have specific needs when it comes to communication and may turn to different sources of information than individuals do. For example, when the United Kingdom reformed workplace pensions in 2008, the Department for Work and Pensions commissioned a market research company to understand the needs of small and micro employers to help them implement and comply with the new requirements. The report found that small employers turned to a number of sources to make decisions, including peers, their trade association, the media, and the government. But the report also emphasised the importance of the most trusted sources, such as accountants, with whom policy makers can engage to help ensure messages are heard and believed. The report found that small and micro employers also expected that they would receive a letter from the relevant government department explaining the changes and their responsibilities. Employers wanted this letter written in plain English with no jargon and laid out in a visually accessible format, clearly explaining the actions they needed to take (Hall, 2010[58]).

1.3. Considerations for policy makers in maintaining and strengthening asset-backed pension arrangements once they are in place

This section discusses key considerations for policy makers in maintaining or strengthening asset-backed pension arrangements when established. It therefore represents the final phase in the chronology of developing asset-backed pension arrangements. Like previous sections, this section focuses on practical considerations to ensure the success of asset-backed pension arrangements. It discusses the main challenges that policy makers face in maintaining asset-backed pension arrangements: maintaining high standards of governance of pension schemes; ensuring strong investment returns, since the adequacy of retirement incomes from asset-backed pension arrangements hinges on asset values accumulating sufficiently over time; aligning fees with the cost of providing the services offered, since high fees can lead to a significant reduction in pension savings; addressing loss of trust in pension systems and low levels of public knowledge about pensions; and ensuring strong risk management processes to protect assets from internal and external threats.

1.3.1. Maintaining high standards of governance by addressing its shortcomings

Policy makers in many countries have faced ongoing challenges to ensuring that the people entrusted with the stewardship of retirement assets continue to have the requisite skills and attributes and act in the best interests of members. While Section 1.1 discussed the basic requirements for good governance, such as having an independent governing body comprised of suitable individuals that administers pension funds and acts in the best interest of members, this sub-section discusses governance shortcoming that may arise as the system develops and how policy makers can address them. The main challenges include that governing bodies can: lack the necessary skills or have skills that deteriorate over time; fail to vigilantly oversee outsourced responsibilities; fail to undertake mergers even if doing so would be in the best

interests of members; fail to appropriately manage conflicts of interest; and lack the diversity that would enable them to better represent their members. This sub-section also discusses the main practical steps countries have taken to maintain good governance standards.

Governing body skills and knowledge

While many countries already have skill and knowledge requirements for members of governing boards, having the right mix of skills on governing boards can be difficult for smaller schemes. For example, a governance review of pensions conducted in 2001 in the United Kingdom flagged the lack of skills and knowledge many trustees, particularly those of smaller schemes, had in investment matters. The report found that they received little training, leaving them unable to make effective decisions or challenge the decisions of others on asset allocation or the management of funds (Myners, 2001[59]). More recently, a 2019 report by the Pensions Regulator similarly found that there was a strong correlation between scheme size and governance behaviours, with smaller schemes having lower quality governance and administration, across both DB and DC schemes. A survey it commissioned found that around 60% of schemes with less than 100 members did not meet any of the five Key Governance Requirements set by the Pensions Regulator, which include a requirement around knowledge (OMB Research, 2019[60]).[28] The regulator stated that providing clearer communications and education was not always enough to drive up standards, even when coupled with enforcement activity (The Pensions Regulator, 2019[61]). There are concerns that small funds may not have access to or may not afford to appoint governing body members or trustees that have the sufficient skill, nor can they draw from a broad set of skills from a sponsor's workforce (Stewart and Yermo, 2008[5]). Further, smaller schemes may have fewer checks and balances to identify trustee skill deficits in the first place.

Governing body skill deficiencies are not exclusively an issue for smaller funds. For instance, a governance survey carried out by the Australian Productivity Commission interviewed the CEOs of large superannuation funds. It found that only 55% strongly agreed that their board had the right mix of capabilities, and only 59% strongly agreed that their boards had effective processes for selecting, developing, and terminating directors. Some respondents also raised concerns about the appointment of nominees with skills and experience that were not well suited to the board's needs (Productivity Commission, 2018[62]).

Finding the right balance between representation and governing body skill and knowledge has been an ongoing challenge in keeping asset-backed pension arrangements robust and well-managed. It is common for governing bodies to rely on non-professional or lay governing members or trustees. In some jurisdictions, these members are typically employee or employer representatives, who play a valuable role in securing buy-in and ensuring the interests of beneficiaries and sponsors are upheld. The OECD Core Principles of Private Pension Regulation support this type of representation (OECD, 2016[1]). But representation should not come at the cost of good decision-making, as already emphasised in Section 1.1. Country experiences confirm the challenge that come with people who may have no prior experience in investment or capital markets being responsible for people's retirement savings. In Ireland, a 2006 report cited independent research that found that many trustees that represented members needed to be assisted on some key issues such as investment decision-making (The Pensions Board, 2006[63]). The Pensions Regulator in the United Kingdom found that small and micro schemes are more likely to have lay trustees who rely more on external advisers and services providers to support compliance (The Pensions Regulator, 2019[61]). A Swiss study also found that 70% of governing bodies it sampled had trustees that were not selected due to their specialised knowledge regarding pension issues (Ammann and Ehmann, 2017[64]).

Policy makers have relied on different approaches to address challenges regarding governing body skill and knowledge. Their main policy responses have included more stringent standards, internal or external governance reviews, training programmes, and information campaigns.

A direct way some policy makers have aimed to raise skill and knowledge standards is to increase the regulatory standard for governing body members. While most countries have tended to favour lighter touch approaches, increasing requirements for potential governing board members is an option some countries have favoured. Australia, for example, has recently taken steps to broaden licensing requirements for trustees, requiring them to hold an Australian Financial Services license. The new licensing process requires potential licensees to show the regulator that they have the appropriate knowledge and skills to provide superannuation trustee services.

Policy makers are also increasingly requiring governing bodies to conduct internal reviews such as self-assessments to encourage them to identify and address skills gaps. Some jurisdictions have requirements in place for pension providers to have, use and disclose a process to assess their board's performance relative to its objectives and to assess the performance of individual directors. The Canadian provinces of Alberta and British Columbia have passed legislation that requires a regular assessment of pension plans. Such a review would include governance, investment, and performance of trustees.[29] Australia also recently passed laws that require the board to conduct annual outcomes assessments to determine whether the trustee is promoting the financial interests of beneficiaries. This requires considerations of product performance, by comparing fees and costs, returns, and risks with other comparable products on the market. The European Union's IORP II Directive also aims to improve self-assessment processes of occupational pension schemes in Europe. The directive states that governing boards should consider reviewing their membership at least once every three years.[30]

A skills matrix can be one of the tools for internal reviews and improve a board's capability to govern effectively. A skills matrix is a visual tool, which boards can use to illustrate individual board members' skills or the board's skills as a collective. The Austrian regulator (APRA) provides an example on its website.[31] The rationale behind a skills matrix is that it allows board members to identify and assess critical skills gaps and guide training and development. It would also guide board appointments, succession planning, and the selection of new members. An independent review by the Australian Productivity Commission stated that a skills matrix would also make it possible to provide boards and CEOs with greater ability to push back against substandard or unsuitable board nominations by sponsoring entities (Productivity Commission, 2018[62]).

Some jurisdictions mandate independent expert reviews instead of self-reviews by governing bodies. Monitoring and assessing its own performance is one of the most difficult things a governing body can do, as people's general reluctance to acknowledge their own shortcomings can stymie their ability to identify and disclose their own weaknesses. Disclosure requirements and skill matrixes can also be ineffective if governing bodies treat them simply as box-ticking exercises. External review processes, where independent third parties perform this function, could bring a more objective perspective. These reviews would certainly provide perspectives that encourage governing bodies to undertake training or to appoint additional experts to their boards (Stewart and Yermo, 2008[5]). Their independence and outsider perspectives can also help reassure stakeholders that the board is managed well (Miller and Funston, 2014[65]). As an example, some jurisdictions in the United States, such as Ohio and New York, statutorily require reviews of asset-backed public pension funds.[32]

Other jurisdictions have embedded governance structures that help with independent reviews through an internal mechanism. For instance, Germany has a dual board structure, where the management board is assessed by the supervisory board. Similarly, in the Netherlands, schemes can have a permanent independent body within the pension fund supervise them (Stewart and Yermo, 2008[5]). This structure separates the monitoring and supervision functions from the active management function, helping to identify issues such as a skills deficit through an internal mechanism.

Promoting better training for governing body members is another way governments have tried to address knowledge and skill shortcomings. Governance rules often require a certain standard of skills and knowledge and for governing body members to understand the principles of good governance when they

are appointed. However, governing body members can fail to update their knowledge and keep abreast of evolving governance responsibilities. Ongoing training makes it possible for governing bodies to update their knowledge and understanding, and to reacquaint themselves with their fiduciary duties.

Some jurisdictions have opted for mandatory training for governing board members. A view that voluntary training ends up being sporadic and poor quality motivated many policy makers to make such training mandatory. For instance, in 2006, Ireland found that when trustees undertook training, they did so within the first year of an appointment, with few trustees taking up refresher courses (The Pensions Board, 2006[63]). To improve trustee knowledge, it passed legislation in 2010 to mandate that trustees receive training within six months of their appointment and at least every two years thereafter.[33] The Irish Pensions Authority also publishes lists of registered trainers for trustees of occupational schemes.[34] Similarly, regulations in the Netherlands require trustees to take courses on pension fund investments and governance, and to do so regularly to update their knowledge (Van Dalen et al., 2012[66]). However, the difficulty with mandatory training requirements is that they can increase the regulatory burden on trustees such that many, particularly lay trustees, will no longer be willing to do the job.[35]

To make the training less onerous and less costly, some jurisdictions have introduced online training sessions. Examples include the e-learning programmes in the United Kingdom and Ireland.[36] Subscriptions to the e-learning programme in the United Kingdom, the Trustee toolkit, are generally high, with coverage extending to 84% of schemes and 74% of individual trustees, and 42% of trustees having accessed the toolkit in 2018 (The Pensions Regulator, 2019[61]).

Other countries have taken a lighter touch regarding training regimes, avoiding introducing firm mandates. In the United States, for example, imposing skill and training requirements on fiduciaries is seen as unnecessary since fiduciaries tend to be senior managers or delegated experts (Stewart and Yermo, 2008[5]). In the United Kingdom, the regulator believes that attaining an appropriate level of knowledge and skills should not be a one-time event, and trustees should be able to demonstrate ongoing learning since the regulatory environment continues to change (The Pensions Regulator, 2019[61]). The industry has developed professional trustee accreditation programmes, and the regulator has stated that these programmes are positive steps towards trustees meeting the standards the regulator accepts.[37] It has also expressed hope that the accreditation route becomes the norm across the industry to encourage professional trustees to be accredited (The Pensions Regulator, 2019[61]).

A related consideration for policy makers is the accessibility of training programmes. This is important to bear in mind, as evidence suggests that some training programmes can be overly academic and therefore of limited practical value to governing bodies (McKinsey Switzerland, 2020[67]). It is therefore not enough for pension funds to provide training to governing body members or trustees, but for that training to be effective and relevant to their day-to-day functions.

Regulators have also launched campaigns to help raise awareness among governing boards of their responsibilities and how to improve their skills and knowledge. For example, in the United States, the Employee Benefits Security Administration has been promoting The Fiduciary Education Campaign for many years. This includes nationwide educational seminars and webcasts to help plan sponsors understand rules and meet their responsibilities to workers and retirees, thereby improving their financial security. The UK regulator launched a campaign called the 21st Century Trusteeship Campaign, which ran for one year. It used targeted communications and education to help trustees understand the basics of good governance. The campaign had a dedicated web page and issued targeted monthly emails to trustees, scheme managers and advisers, linking to themes underpinning good governance. The emails provided examples of good behaviours and featured case studies on how to improve outcomes for members. The campaign also directed trustees to other useful tools such as the Trustee Toolkit and a risk matrix tool. However, the campaign only drove a relatively small number of trustees from being disengaged to engaged and the authorities did not see significant improvement overall in levels of engagement, particularly in relation to trustees of small and micro DC schemes (The Pensions Regulator, 2019[61]).

Oversight of outsourced functions

Governing bodies of many pension funds outsource activities to specialised providers. They do so to take advantage of other entities' specialist knowledge, economies of scale, and flexibility. Outsourcing arrangements can be diverse, such as pension management, asset management, board support, and ICT (e.g. infrastructure services, data management). However, a key feature of good governance is ensuring any functions that governing bodies outsource to external services providers do not discharge it of its responsibility to a pension plan. This is in line with Core Principle 3.7, which states that a governing body should be able to understand any advice it receives from an external provider, and assess it, including its quality and independence (OECD, 2016[1]). Doing so calls for ongoing attention and diligence regarding these services. Further, some outsourcing chains are becoming longer, and this can further reduce a governing board's visibility of outsourced activities, warranting greater attention from policy makers (Talsma, 2018[68]).

In practice, however, some jurisdictions have found that governing bodies have not always upheld a high standard of oversight for outsourced functions. For example, the Australian Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry found evidence that some providers have taken a lax approach (Commonwealth of Australia, 2019[12]). The Dutch Central Bank similarly conducted a survey that revealed shortcomings in the management of outsourcing. The survey found that outsourcing was often not registered centrally and that governing bodies often did not receive regular information about the management of outsourced and sub-outsourced tasks. It also found insufficient information about the quality of outsourced services and flagged the potential for risks to increase alongside a trend for greater cloud outsourcing (De Nederlandsche Bank, 2018[69]).

Some countries have amended reporting and disclosure requirements to address shortfalls in the oversight of outsourcing activities. Supervisors typically require pension funds to meet basic reporting requirements at the very least. Recent regulatory changes have aimed to include disclosure of outsourced functions within some of the broader reporting requirements pension providers need to meet.[38] The EU IORP II Directive applied new procedural requirements for outsourcing scheme activities that trustees would be required to meet. These include matters such as having written agreements with services providers, and requirements not to outsource services if doing so would unduly increase the risks of the scheme. It also requires that governing bodies notify the relevant authority when they have outsourced any activity.[39] The Australian Productivity Commission also recommended that trustees conduct a formal due diligence of their outsourcing arrangements every three years, with a copy of the assessment to be provided to the supervisor (Productivity Commission, 2018[62]).

Mergers and consolidation

Whether a governing body should actively consolidate has raised questions about good governance in some jurisdictions. A merger may be in the best interests of members if a provider is small and a larger entity is capable of delivering better value to members through greater scale.[40] A governing body may therefore be in a position to consider whether a merger or consolidation should happen and how a new merged entity would be managed and governed. By extension, a failure to merge or consolidate, when doing so is manifestly in members' interests, may constitute poor governance by pension entities. However, there is a lack of consensus regarding the benefits of consolidation. Box 1.1 presents arguments in favour and against consolidation. Policy makers considering encouraging greater consolidation should bear in mind the different arguments and adapt them to their country's own context.

Box 1.1. Arguments in favour and against consolidation

Arguments in favour of consolidation

Lower costs. Greater scale means the marginal cost of managing a larger pool of assets is smaller. Further, larger schemes tend to have greater power than smaller schemes when negotiating with services providers on fees. Larger schemes can also do more activities in-house, which can be cheaper. Evidence from different OECD countries supports the notion that member costs are generally higher in small schemes (see, for example IFF Research (2014[70]); Bikker and De Dreu (2007[71])). That said, other evidence qualifies this finding to certain kinds of costs, such as administration, rather than others, like asset management (Konkurrence- og Forbrugerstyrelsen, 2019[72]). Further, some recent evidence has suggested that while economies of scale do bring down costs, their magnitudes may be smaller than they were in the past, particularly if smaller pension funds have already merged, leaving smaller gains to be had (Bikker and Meringa, 2021[73]).

Better investment performance. At least historically, there is evidence to show that countries with fewer pension funds were more likely to have experienced higher real net returns (OECD, 2016[74]). Larger schemes may be able to implement more sophisticated and diverse investment strategies. Further, they may have better access to a broader suite of investment opportunities, including illiquid assets such as private equities. Investing in these instruments often requires scale to invest in directly, and if not, many external managers only work with the largest investors. To access the investments, smaller pension funds tend to rely on fund-of-fund structures and listed funds, whose cost can be a deterrent (McKinsey Switzerland, 2020[67]). However, some research disputes the argument that larger schemes achieve better investment performance. Some evidence shows that smaller pension entities can do just as well as larger ones in terms of investment returns. One possible explanation is that smaller pension entities may invest through smaller but highly reputable private equity managers that require fewer resources and are easier to access (Keskiner and Matthias, 2018[75]).

Better governance. Larger funds may have better governance practices, since they invest in professional risk management and governance services. Further, they may have stronger and more professional talent with better capabilities to monitor and respond to new regulation. Better governance is argued to reduce risks, and in turn, increase risk-adjusted returns (Keskiner and Matthias, 2018[75]). Some evidence has linked the poorer performance of smaller funds to them having less effective governance and risk management practices than larger schemes. For instance, a Swiss study attributed larger funds' better investment returns to them having institutionalised internal governance processes in place (Ammann and Ehmann, 2017[64]).

Arguments against consolidation

Complexity and cost. Fund consolidation can be a complex process requiring expert advice on legal and administrative matters. The act of closing a scheme and transferring members to a new arrangement also comes at a cost, which can present significant outlays in a given year, although over time may save money (Department for Work & Pensions, 2021[76]). It also calls for a consideration about how to uphold members' interests, such as investments under a new consolidation structure and how to give effect to preferences like incorporating ESG. Another argument is that consolidations may not be favourable to another party. Indeed, some schemes may not wish to accept 'low value' members (Department for Work & Pensions, 2021[76]). Further, different benefit structures can be hard to combine, although there are examples of consolidation models that address this concern (Miller and Funston, 2014[65]).

Loss of power and responsibility. Some sponsors or members may resist consolidation as they do not wish to lose representation and influence over a fund's direction.

Challenges in upholding members' rights. Some retirement savings contracts come with special arrangements like guarantees that people could lose if they are moved to alternative arrangements. This presents an added complication for trustees to navigate, calling for bespoke solutions such as compensating savers for surrendering guarantees (The Pensions Regulator, 2019[61]).

Risk of too little competition or an oligopolistic market. A concern about having too few providers is the risk that they would hold too much market power and the market would become too concentrated, which can dampen competition and lead to higher costs to members.

Some countries have considered the issue of failures to merge and the barriers to consolidation. For example, a Royal Commission in Australia stated that a superannuation fund board should determine whether to merge with other superannuation funds based on what is in the best interests of members. However, it warned that some factors may cloud a governing board's judgement, such as whether its members would have a seat on the new board (Commonwealth of Australia, 2019[12]). Relatedly, the Australian Productivity Commission stated that there was certainly potential for board composition decisions to have scuppered some merger discussions. Further, it flagged that it was often difficult for regulators and supervisors to address such situations, since they generally know little about mergers that governing boards may have considered but not completed (Productivity Commission, 2018[62]). In the United Kingdom, research conducted by the regulator found that some small and micro schemes had a 'if it isn't broken, don't fix it' mind-set, which may limit the active consideration of consolidation. Further, it found that trustees at times simply did not have the knowledge and understanding of the wind-up process, or trustees considered the process long and laborious, discouraging them from undertaking it (The Pensions Regulator, 2019[61]).

Regulators and supervisors in many countries have encouraged greater scheme consolidation in recent years to address governance shortcomings. Their intervention has most commonly involved nudging governing bodies to consider whether their members would be better served through a different pension arrangement, with a view to normalising better practices. Such efforts can help overcome governing bodies' inertia regarding consolidation by challenging cultural or practical barriers, often following a scheme review. As an example, the Pension Regulator in the United Kingdom has taken steps to expand an existing value for members assessment requirement to cover merger considerations. It has started requiring schemes with assets below GBP 100 million to compare their scheme performance to another and have discussions with a comparator scheme about the possibility of winding up.[41] If they are not delivering good value, the government expressed an expectation that trustees would consolidate (Department for Work & Pensions, 2020[77]).[42] The Pensions Regulator has also recently revised its guidance on winding up to make the process easier for trustees to understand.[43] The Irish Pensions Authority has similarly flagged that one of its key goals was seeing the consolidation of DC schemes.[44] In the Netherlands, regulatory activity also helped nudge pension funds to consolidate. The regulator wrote to pension funds that were small and unlikely to fulfil governance requirements for running a pension fund, encouraging them to consolidate. Pension funds responded to the risk of further investigation, prompting an increase in consolidation activity.[45]

Apart from efforts to see greater consolidation, the idea of greater disclosure of merger decisions has also been topical in some countries. The Australian Productivity Commission recommended improved reporting to address instances of failed merger attempts, which would have otherwise been in the best interests of members. In its independent review, it recommended that trustee boards should disclose to the supervisor any instances of them entering into a memorandum of understanding with another fund in relation to a merger attempt. Should a merger not proceed, the fund would be required to inform the supervisor of the

reasons why not, and the members' best interests assessment that informed the decision (Productivity Commission, 2018[62]).[46]

Conflicts of interest

Many OECD member countries continue to see conflicts of interest as a major governance challenge, despite the existence of legislation to mitigate it. A fundamental governance principle is that governing body members have a duty to act in the best interests of members. The Core Principles acknowledge, however, that some conflicts of interests may be inevitable, and should be appropriately managed (OECD, 2016[1]). That said, even when jurisdictions have good conflict of interest rules, this can continue to be an area of concern that calls for ongoing attention and management.

Policy makers have taken steps in recent years to better address conflicts of interest. As explained in Section 1.1, conflicts of interest can arise when governing body members stand to personally benefit from their role, or when they are subject to external interference, whether that is from a related or parent company, shareholders, the government, or any other stakeholder. Country responses to address these different types of conflicts of interest have generally involved clarifying governance expectations, strengthening internal controls, promoting the presence of independent members on boards, and having stringent legal frameworks targeting certain categories of conflicts of interest.

Policy makers have taken action to clarify governing bodies' roles. Conflicts can continue to arise simply because governing body members may be uncertain of their roles and responsibilities or their best interest duty (Productivity Commission, 2018[62]; The Pensions Board, 2006[63]). Therefore, some policy makers have relied on educational support to clarify expectations and help providers prevent or manage conflicts. Some jurisdictions have also needed courts to hear test cases to clarify legislation. For instance, in Canada, court cases as well as regulatory guidelines have been needed to clarify that, when there is a conflict between an employer's own interests and their duties to members, the employer must still act in the best interests of members (Steele and Litner, 2017[78]). Other jurisdictions have also released extensive guides to help governing body members understand their responsibilities and identify and manage conflicts of interest.[47]

Strong internal controls should support conflict of interest rules. If procedures aimed at preventing conflicts of interest become mere formalities, those conflicts can persist despite the presence of frameworks and policies to counter them. Trustees can fail to manage conflicts effectively, despite having elaborate governance frameworks. For example, the Australian supervisor APRA realised that having a good set of frameworks and policies, with the audit and compliance functions doing their jobs, may not guarantee that things work as intended (Commonwealth of Australia, 2019[12]). This is why it is important for policy makers to encourage governing bodies to develop strong internal control structures. Those internal controls can help ensure a strong risk management culture through actions like establishing communication channels between levels of management and having an adequate risk measurement and management strategy. While strong internal control structures may not ameliorate all conflicts of interest, they at least help avoid lax attitudes towards conflict prevention and can promote vigilance among governing body members. Policy makers can encourage internal controls through codes of practice or through direct enforcement activity. A governing body that is effectively made up of two boards – a supervisory board and a management board – is another way to make it easier to identify and manage conflicts of interest through an internal mechanism.

A further trend among countries aiming to address conflicts of interest is to have independent governing body members. Independent members aim to bring an independent view on functions and can help overcome some concerns about conflicts of interest, particularly those that arise due to conflicts between shareholder interests and those of members.[48] Policy makers can either mandate having independent members or encourage their presence on boards. In the United Kingdom, for instance, the law has limited the number of trustees that a sponsor can appoint, and this has resulted in a growing use of independent

trustees. However, in some countries, promoting independent trustees has proved problematic since doing so can come with excessive costs, particularly for smaller plans. These concerns have strengthened the case for consolidation of some smaller pension funds, since economies of scale can make it possible for pension entities to adopt more sophisticated governance structures.

A final approach that policy makers have taken to address conflicts of interest is to have stringent legal frameworks to target certain categories of conflicts of interest. The United States is an example of a jurisdiction that has implemented a framework that prohibits certain transactions that may raise conflicts of interests. The relevant legislation, the Employee Retirement Income Security Act (ERISA), provides for blanket rules on prohibited transactions. These apply in addition to fiduciary duties and operate to prohibit transactions that are described as 'per se' violations. This means that no fiduciary misconduct needs to occur for there to be a breach of the prohibition of the transaction provisions. Broadly speaking, these prohibitions refer to transactions between a plan and a certain party of interest, and instances of self-dealing (Reish and Faucher, 2009[79]). While the system is complex, it is relatively easy to enforce. Further, the legislation provides for a number of exceptions to the rule, making the legislation flexible.

Diversity of governing body members

An emerging issue in the context of governance shortcomings is a lack of diversity in governing boards. Proponents of greater diversity make the case that boards should better represent the demographics of their members in order to give effect to their interests. Evidence of low board diversity within pension providers has surfaced in recent years. In the United Kingdom, in 2016, 83% of members of governing bodies were male (PLSA, 2016[80]), and around half of chairs and a third of trustees were over 60 years old (The Pensions Regulator, 2019[61]). A Dutch study found that only 40% of pension funds had one trustee younger than 40. It also found that funds with higher average board ages tend to invest more conservatively. This effect was evident in funds whose trustees were also beneficiaries, suggesting that trustees may unconsciously apply their own preferences when making investment decisions, leading to bias (Bauer et al., 2020[81]). Another study using Polish data found that during the global financial crisis, the age of independent board members was negatively correlated with fund performance (Jackowicz and Kowalewski, 2012[82]). Both studies also highlighted a downside of diversity, finding that funds with more women on boards tended to invest less in equities.

A failure to apply term limits to governing body members can limit diversity, since it precludes new members who are more diverse and who bring new perspectives from joining. The Australian Royal Commission found that while many funds have term limits, some have applied those limits prospectively, leaving some board members in place for too long (Commonwealth of Australia, 2019[12]). The Australian supervisor APRA also recently flagged that boards too often invoke 'special circumstances' to extend board member tenure beyond a maximum term. It views this as poor succession planning and stated that boards should treat this as the exception rather than the norm.[49] In a Swiss study, only 18% of boards were found to have established term limits for their trustees (Ammann and Ehmann, 2017[64]).

Some countries are taking steps to implement greater diversity. While there appears to be little regulatory action in this regard, there are examples of industry-led regulation. The Code of the Dutch Pension Funds, for instance, states that each governing body should have at least one man and one woman, one person younger and one person older than 40 years old.[50] Pension funds follow the code under the comply-or-explain principle, which means if they do not comply, they must explain in their annual report why they have not met this standard. By 2016, the proportion of boards with at least one woman increased to 60% from 40% in 2007. Following the introduction of the code, the proportion of trustees under 40 had not changed significantly. However, this could be explained by legislative changes in 2014 that called for greater experience for people to be hired as trustees, which younger candidates may not be able to meet (Bauer et al., 2020[81]).

1.3.2. Improving investment returns

A common criticism of asset-backed pension arrangements is that returns may not be meeting expectations. Asset-backed pension arrangements lose credibility when the value of retirement savings does not grow the way people expect. This is a concern that has accompanied asset-backed pension arrangements in many countries, particularly given recent years' low growth environment. Low returns afflict DC pension arrangements since they present a direct threat to retirement income adequacy. Low returns also affect DB arrangements by making it more financially burdensome for sponsors to keep a pension promise.

There are different reasons for low investment returns. One is a high exposure to low-risk assets, which has become more concerning in recent years, as returns have trended downwards on traditional asset classes such as government bonds. Investment managers may invest retirement savings in low-risk assets because of investment restrictions, to manage minimum return guarantees, or to meet members' own preferences and behaviours. But further, poor performance by investment managers can also contribute to low returns even when they are able to invest in better-performing asset classes.

Investment rules and restrictions

Some countries have asset class limitations that restrict the amount of assets that pension providers can invest in riskier asset classes. Most commonly, the limits apply to investments such as shares or certain classes such as foreign investments or alternatives (OECD, 2015[13]; 2021[83]). Portfolio limits can be costly because they can preclude investment in higher-return assets, leading to reduced returns. Proponents of portfolio limits often justify them on the basis that they can protect members against decreases in the value of their assets or large swings in those values. Some policy makers also argue that if pension providers under-perform or fail due to risky investments, governments might feel obliged to step in to protect retirees, which can be costly to the public purse (World Bank, 2000[84]). Another reason why investment restrictions might exist is that when some countries introduced asset-backed pension arrangements, they lacked sophisticated financial instruments and pension providers were inexperienced in investment matters. Some countries also placed investment restrictions on foreign assets, so that retirement savings can help develop domestic capital markets. For these reasons, policy makers put investment restrictions in place with the view to gradually loosening them over time as the financial market became more developed and experience in investment deepened (Section 1.1).

Policy makers should favour a risk-based approach over quantitative investment limits (OECD, 2016[1]).[51] Loosening any ongoing unnecessary asset class limitations should certainly be a priority for countries seeking to foster strong investment performance in asset-backed pension arrangements. In contrast to strict quantitative limits, risk-based requirements impose a higher risk charge for investments with a higher level of risk, providing an incentive to better manage them (OECD, 2015[13]). That said, while loosening investment rules can help, doing so does not automatically lead to more diversified portfolios. Indeed, many countries with relatively liberal investment rules may continue to see low investment in riskier assets, for reasons discussed in the subsequent sub-sections.

Poorly designed default arrangements are a type of investment rule that can reinforce individuals' tendencies to select low-return investments. Default strategies allocate suitable investments to people when they do not make their own decision. However, in some countries, such as Latvia, default investment strategies continue to be relatively conservative, so would do little to counter individuals' tendencies towards low-risk assets. In such instances, policy makers could consider revising default investment strategies.

Guarantees

Investment in products that offer minimum return guarantees, capital guarantees, or a benefit promise can lead to lower investment returns. Guarantees can reduce the scope for pension providers to invest in higher-risk assets, since doing so can reduce the chances they will be able to meet the guarantee promise. Guarantees also come at a cost, especially as they get more generous, so they can reduce the expected value of retirement savings, thereby reducing the rate of return net of fees (Antolín et al., 2011[85]).

Although guarantees can reduce returns to members, it is easy to understand why they continue to be popular. The equity market crashes that came with crises such as the Great Recession and the COVID-19 pandemic were a stark reminder of the vulnerability of pension savings. It is natural for people to want greater security for their retirement savings when confronted with events like these. Guarantees therefore help alleviate people's concerns. And products with guaranteed returns or capital guarantees remain commonplace in many countries. They include occupational pension plans like cash balance plans in the United States and Japan, or personal pension plans like the German Riester plans and the Pan-European Personal Pension Product.

Policy makers in many jurisdictions face a fine balance when developing the regulatory framework so it promotes products that make asset-backed pension arrangements more palatable, or those that yield better retirement outcomes via higher returns. In order to keep asset-backed pension arrangements delivering good returns, policy makers in many countries have grappled with the question of whether guarantees are worthwhile. Certainly, many other conflicting considerations are relevant to this question. Decisions about whether guarantees are desirable for DC plans, for example, can depend on the context of the system. If unfunded public pensions are already likely to provide sufficient retirement income, guarantees add relatively less value. In such contexts, the OECD generally advises countries that it would be sensible to take steps to nudge people away from guaranteed return products to those that pave the way for better performance.[52]

Policy makers in some jurisdictions have taken steps to shift away from guaranteed products. In Denmark, for example, the government made an agreement with the pension sector to support the development of pension products with low or no guarantees. The agreement made it easier for consumers to reselect and move to non-guaranteed products. This has led to a change in the range of products available in recent years, with an increasing percentage of new contributions going towards non-guaranteed products (Finanstilsynet, 2017[86]). The German Government has also passed new laws to allow pure DC schemes, with no minimum benefit or interest guarantees based on collective bargaining agreements, to complement existing occupational schemes. Other countries have taken lighter steps to nudge people away from guaranteed products. The main avenue is through default arrangements that automatically assign more suitable investment strategies to people based on their risk profiles through arrangements like life cycle products. Other countries have opted for greater disclosure requirements to encourage people to engage more with risk, as is discussed below.

Member preferences and behaviours

Even countries that do not have asset class limitations or guarantee requirements can struggle with a population's reluctance to engage with risk when individuals have investment choice. Ideally, individuals would behave rationally by investing such that their risk-return combination reflects their investment horizon, degree of risk aversion, and their portfolio of assets. However, individuals tend neither to follow traditional assumptions nor maximise their self-interest, often because they lack the ability or the will to optimise their investments (Tapia and Yermo, 2007[87]). This is partly due to low levels of financial literacy, and partly due to conservative biases, which can reflect an innate tendency to avoid revising behaviours or beliefs even when presented with compelling evidence of the benefits of different behaviour. Equally, many people tend not to seek out financial advice that would otherwise help them optimise their decisions, defaulting to their own intuition. These individual preferences and behavioural patterns often manifest in

an overexposure to low-return products, even when consumers are presented with theoretically more suitable options.

Policy makers can take steps to ensure people's investment choices better reflect their risk and return preferences. Their efforts can be part of broader financial education and communication initiatives, as discussed later in this section. But further, campaigns explicitly targeted at encouraging people to engage with their investment choices can also be effective if designed well. For example, when Sweden launched a campaign encouraging people to make active decisions about their investment strategies when the Premium Pension was introduced, a large number of people actively made a decision. As a result of the campaign, they tended to invest more in equities and active management (OECD, 2020[88]). Furthermore, how pension providers communicate about investment strategies matters to how people perceive them, influencing their choices. Using simple, straightforward, and adapted communication that is standardised as much as possible can help people understand and compare the different risk, return and cost profiles of investment strategies (OECD, 2020[45]). Limiting available choices can also help prevent instances of choice overload, which can discourage people from improving their situation (OECD, 2018[89]).

Policy makers have also aimed to address people's unwillingness or inability to select appropriate investment strategies by relying on defaults. Defaults, particularly those that aim to match people's investment strategy with the appropriate risk profile for their age, are one way to counter people's tendency to make poor choices when given the opportunity. Evidence shows that defaults have been broadly successful in all jurisdictions, as a significant proportion of people remain invested in a default (OECD, 2020[88]). However, as already discussed, the effectiveness of defaults hinges on their design, as conservative defaults may be counterproductive, reinforcing existing biases.

Investment manager performance

A final driver of poor returns in asset-backed pension arrangements is also that investment managers may perform poorly, even when they are able to invest in asset classes that should otherwise yield higher returns. This can be down to a lack of skill by investment managers, or simply little incentive to improve due to weak competition and a disengaged consumer base.

Policy makers in some jurisdictions have taken steps to penalise poorly performing providers. For example, in Australia, underperforming funds are required to send letters to their members to inform them that their fund was underperforming and to prompt members to consider moving to other products.[53] Other jurisdictions, such as Chile and Peru, have also required that investment managers provide a minimum guarantee that is established with reference to a peer benchmark. However, evidence in those countries has shown that these guarantees encourage herding behaviour, and the OECD has previously recommended that countries rely on independent investment benchmarks to avoid herding in investment behaviour (OECD, 2019[90]). Promoting competition can also help ensure that the market penalises poorly performing investment managers in favour of better performing ones. Measures to stimulate competition are discussed in the next sub-section.

1.3.3. Aligning fees with the cost of the services offered

A common problem that many countries face regarding asset-backed pension arrangements is that people perceive those arrangements to be expensive. Perceptions of poor cost-adjusted value have led some populations to reject asset-backed pension arrangements, particularly voluntary ones. In this regard, asset-backed pensions, particularly DC pension arrangements, differ from unfunded public pensions. Pension provision, whether funded or unfunded, comes at a cost. That cost is quantifiable and at least partially explicit when assets accumulate to fund retirement income, and fees directly counter their growth. That is, members can see the way costs affect their savings in a way they may not in other pension arrangements.

That is not to say that concerns about excessive costs are unfounded. The experience of many countries provide evidence that prices are often high, particularly when pension providers are for-profit entities and there is far from effective competition.

Prices will inevitably be high if there is no pressure to force them down. There are many reasons why fees for pension provision can be high relative to the costs providers incur. These include a lack of competition and the creation of duplicate accounts when members move jobs. Policy makers in many countries have taken action to address these issues, either by fostering competition, by directly intervening in a market in a way that forces down prices, or by avoiding the duplication of accounts.

Fostering competition

Strong competition is one way to put downward pressure on prices, but is not easily realised in the market of asset-backed pension provision. A competitive market calls for many producers that compete with each other to satisfy the wants and needs of their consumers. Equally, it calls for consumers who shop around for products and make rational choices in their best interests. However, a common feature of asset-backed pension arrangements around the world is weak competition, which leads to less efficient operations and relatively high costs. Further, the potential quality of services such as investment management and advice, as well as the available product range, is often limited relative to what members would achieve in a more dynamic market.

There are both supply-side and demand-side impediments to a competitive market in asset-backed pension provision. Supply-side impediments relate to the structure of a market and the products that are available in it. They include market concentration, vertical integration, conglomerate integration, barriers to entry, and heterogeneity of products. Demand-side impediments are concerned with consumer attitudes. Switching costs, search costs, and lack of consumer awareness and financial literacy are key barriers to consumers' involvement in a market for retirement savings provision. Additionally, a robust consumer protection regime should complement a competitive market.

Supply-side factors

A market for retirement savings provision that has too few providers, or a high concentration of providers, may hinder competition. For competition to work well, there should be a reasonable variety of pension providers and services providers for consumers to choose from. High concentration can be conducive to a lack of pressure to reduce fees. Studies from some OECD countries have revealed evidence of concentration in some markets for retirement savings provision. For example, a study of competition among AFOREs in Mexico between 2012 and 2018 found a negative Panzar-Rosse H-statistic, which points to monopolistic behaviour (Arteaga García and Almendárez Carreón, 2020[91]). To prevent a single provider from becoming too dominant, Mexico has capped the potential market share each provider can have at 20%. However, the relationship between competition and concentration is ambiguous. Concentration can in fact be the product of heavy competition that leads to increased consolidation (Bikker and Spierdijk, 2008[92]). Therefore, any quantitative analysis of concentration alone is not enough, often calling for a case-by-case qualitative analysis of different market features.[54]

Vertical integration is usually viewed as pro-competitive but can lead to poor outcomes for members when combined with governance shortcomings. Vertical integration refers to the co-ordination of successive stages of production or distribution under the same control (Kessler and Stern, 1959[93]). Many financial institutions have already integrated some or all of their supply chain into a single business model. The supply chain can include the design of different products, their sale, management of funds or insurance policies on behalf of clients, provision of financial advice, and distribution of products. The main purpose of vertical integration is to substitute market exchanges with internal exchanges within the boundaries of a firm (Coase, 1937[94]). Competition authorities generally view vertical integration as pro-competitive, since it often brings together non-competing firms, whose interests are aligned with consumers' (OECD,

2019[95]). Vertical integration can decrease transaction costs and allow for better co-ordination regarding product design (European Commission, 2008[96]). Further, a vertically integrated business can enable firms to reduce production costs by realising economies of scope, or cost savings that come from producing a greater variety of goods (Farsi, Fetz and Filippini, 2008[97]). However, vertical integration can intersect with governance shortcomings to lead to poor outcomes for members. For example, the Australian Royal Commission identified a case where a pension provider entered into service agreements with other entities within its financial group, even though the pricing was not the best they could do for the members. Although the entity knew fees were high, an internal bureaucracy within the financial group meant that fees could only be reduced if there was approval from other parts of the group (Commonwealth of Australia, 2019[12]).

Conglomerate integration can lead to bundling and cross-selling opportunities, which may lead to worse outcomes for members. Conglomerate integration refers to a business being integrated across parts of a different supply chain. In the financial services sector, providers often offer products across the banking, insurance, and retirement savings industries, creating integrations across different supply chains. Conglomerate integration makes it possible for businesses to offer various financial products and services that are bundled together and sold as a package. Bundling can be efficient, allowing consumers to access a number of products at the same time and potentially at a lower cost (Productivity Commission, 2018[98]). However, it allows firms to leverage their presence in one market to enter another and use revenues from one function to recover costs from another. In this respect, scale in one market bolsters another activity, obscuring prices and making it hard for competitors to compete (Productivity Commission, 2018[98]).[55] Bundling can also be a concern if people are not aware that they are paying for 'add-ons' to pension products, or the impact that the cost of additional products can have on their retirement savings.[56] Cross-selling of products is also an issue that arises in the context of conglomerate integration, and occurs when companies sell related or complementary products to a consumer. For instance, banks can cross-sell other products like pension products to an existing banking clientele. Conglomerate integration therefore creates an incentive for an entity to promote its own products, even if that is not necessarily in the best interests of members.

In response to concerns that come with vertical and conglomerate integration, policy makers are more likely to address the practices that interact with integration.[57] Country authorities rarely directly dismantle vertically integrated markets. They tend to address other shortcomings, such as governance, which, combined with a vertically integrated arrangement, can lead to poor outcomes for members. It is the same for conglomerate integration. The Danish Competition and Consumer Authority, for example, has proposed that a working group be set up to develop measures to restrict bundling and cross-subsidisation between different costs by pension companies. The view is to create a more transparent market and make prices more comparable (Konkurrence- og Forbrugerstyrelsen, 2019[72]). The Danish Financial Supervisory Authority have similarly proposed banning pension companies from bundling pension and insurance products to directly address the prevalence of loss-making sweetener deals on insurance that encourage purchases of pension products, distorting competition in the pension sector.[58] Further, the Australian Government banned superannuation funds from charging insurance premiums in inactive accounts to avoid duplicate insurance policies.[59]

High barriers to entry, whether formal or informal, can also affect competition. The theory of contestable markets posits that competition is determined not by the number of incumbents but by freedom of entry (Baumol, 1982[99]). Contestable markets operate under a threat of entry if rival firms can enter a market when incumbents charge prices above marginal costs and earn abnormal profits (Claessens, 2009[100]). Formal barriers to entry are commonplace for retirement savings provision. These can include legal provisions on licensing or minimum capital requirements. Such regulatory barriers exist to ensure pension entities have the capacity to perform their functions and to do so without detriment to members. However, regulators and supervisors face a careful balancing act between encouraging greater competition in the market and ensuring that providers are well placed to uphold members' interests. Informal barriers to entry include the relatively large, fixed costs that can come with retirement savings provision, which can deter

new entrants. Additionally, recognised or trusted players with existing links to consumers (e.g. banks and insurance companies) naturally have an advantage over incumbents without the same brand name recognition. Furthermore, competition is typically limited to workers who first enter the labour market and those who transfer from other providers. Customers of pension providers tend to be more disengaged and shop around less frequently. This means that providers that first entered the market for retirement savings provision were able to gain members quickly and achieve the economies of scale they needed to remain competitive. Newer entrants, on the other hand, often fail to get the same traction to achieve the scale to compete with incumbents.

Policy makers can take steps to alleviate both the formal and informal barriers to entry in markets for retirement savings provision. Although many regulations exist to protect consumers from unsuitable products and providers, authorities may need to revise rules that excessively restrict barriers to entry. In this regard, authorities may wish to implement regular procedures to reassess the impact of regulation on the market and implement reforms if necessary. Further, policy makers can take steps that address the informal barriers to entry. Many of those barriers stem from new providers' inability to gain a foothold in the market, which in turn relates to consumer disengagement and behaviours. Policy makers who have set up auction or tender mechanisms have made it possible for a provider to capture new default entrants in countries such as New Zealand, Chile, and Peru. This can enable them to gain the scale and market power they would not otherwise be able to achieve, thereby reducing the informal barriers to entry. In Chile, for example, two new pension fund providers entered the market thanks to the auction mechanism.

Standardisation is the main policy response when heterogeneous products reduce competition. Heterogeneous products allow providers to differentiate their products from the competition and allow consumers to select from a variety of products. However, if firms decrease price comparability, they can decrease people's sensitivity to that price and therefore increase margins. In that sense, heterogeneity makes it easier for firms to raise prices without the risk of losing customers (Bikker and Spierdijk, 2008[92]). For instance, if one DC pension provider offers an investment option with a risk/return profile that is not available with another provider, they could get away with charging a higher investment fee. A main response from policy makers is to have products that are standardised to the extent possible. One example is the market for pension pay-out products in Chile, where all providers are required to meet the same design specifications. That is, pay-out products need to fit within a list of prescribed types, such as programmed withdrawal, life annuity, or deferred life annuity. Therefore, providers directly compete on price instead of being able to differentiate themselves to the extent that they can unilaterally raise prices.

Demand-side factors

Switching costs may hinder competition, but may be justified when too frequent switching may result in worse outcomes for members. A purely competitive market calls for customers seamlessly switching from the least competitive to the most competitive pension providers.[60] In practice, however, seamless switching rarely exists because of the existence of switching costs. Explicit switching costs can come in the form of exit fees and switching fees. They are justified as switching is administratively burdensome and come with transaction costs, while it can also constrain a provider's ability to hold illiquid assets. However, providers may also set higher fees than the true costs of switching to deter customers from changing providers and consolidate market power. Switching costs can also come in the form of foregone benefits when customers eligible for certain benefits with their provider can lose them if they leave. In Denmark, for example, many people in older schemes face a disincentive to switch as they would lose their guarantees or profit-sharing bonuses (Konkurrence- og Forbrugerstyrelsen, 2019[72]). Further, artificial switching costs can exist in the form of psychological barriers to switching, for example due to brand loyalty or the logistical effort people experience when switching provider.

While competition theory would generally view switching costs unfavourably, the market for asset-backed pension provision poses unique concerns that justify their existence. Frequent switching can lead to worse net investment performance for individuals, higher liquidity needs for funds, and higher volatility in financial

markets (OECD, 2020[88]). In Mexico, for example, where sales agents were particularly active in convincing participants to change providers, more than half of annual transfers between 2011 and 2014 were to funds offering lower returns (OECD, 2016[101]).

Policy makers face a tension between imposing switching costs if they are desirable and removing them if not. In countries where excessive switching poses a serious risk of destabilising markets or producing poor outcomes for members, regulators have understandably effectively imposed switching costs to moderate their impact. Such steps have come in the form of explicit limits (e.g. limits on the frequency of transfers) or implicit limits (e.g. putting in place administrative procedures, processing times, and requirements around financial education before switching) (OECD, 2020[88]). When the market for retirement savings provision is characterised by low switch rates and lacks the dynamism to push prices down, policy makers have taken steps to remove impediments to switching. An example is the treatment of exit fees. Australia, for instance, has banned providers from charging exit fees to customers when they switch providers.[61] Similarly, the Danish competition authority recommended that any fees for transferring a retirement savings pot should be cost-based. Further, it recommended that transferring small pots should be free (Konkurrence- og Forbrugerstyrelsen, 2019[72]). Policy makers can also reduce switching costs by making it easy for members to switch. Sweden, for example, has an online platform that allows customers to change their pension provider simply and seamlessly.[62]

Comparison and advice services can reduce search costs and make it easier for consumers to exercise competitive pressure. Search costs refer to the time, effort, and money required to obtain information about a product and compare alternative options. Consumers face high search costs when products are hard to understand and compare, and have complex interactions with tax and public pension systems. Finding products and investment options that match the preferences and risk profiles of savers is also challenging because it requires balancing risks and consumption needs now and in the future. Consumers may also perceive ‘choice overload’ when confronted with many confusing options they do not understand. Further, search costs are even higher for people with low financial knowledge. Because of search costs, consumers may make suboptimal decisions, such as not purchasing a retirement savings product, or not shopping around for better deals.

Disclosure standards decrease search costs by making comparisons easier. Supervisory authorities in many jurisdictions have taken efforts to require that providers make available information about pension products and their performance in a simplified and standardised format. Doing so makes it easier for people to compare options and make informed decisions about retirement planning and saving, although disclosure standards may still fail to be effective for consumers with low levels of financial knowledge. Many jurisdictions also provide comparative online platforms on their websites to help consumers compare different funds’ performance and cost.[63] Some countries have also taken steps to provide independent financial advice to individuals on matters relating to retirement. In the United Kingdom, for instance, a public service called Pension Wise provides free one-on-one appointments for independent financial guidance on different retirement product options.[64]

Low levels of financial knowledge and consumer disengagement can reduce consumer pressure on providers. In many jurisdictions, consumer knowledge about financial products and pensions is low (OECD, 2020[102]). From a competition perspective, this means that they often do not shop around in the market for retirement savings provision. Further, many behave in a way that is counter to their best interests, because low levels of financial knowledge make it harder for consumers to compare prices and exercise judgement. Consumer disengagement is also a common demand-side determinant in the market for retirement savings provision. Consumers are commonly myopic and tend to put off engaging with their retirement planning. Many are unwilling to make the effort to seek out pension products or shop around if they are not getting good value from their existing provider. Consumers may also be disengaged simply out of loyalty to an existing brand. Further, consumer disengagement can be the result of behavioural biases. Biases not only result from myopia, but also sensitivity to how choices are framed. Consumers may prefer to maintain the status quo even if they could benefit from other options, due to loss aversion and “choice overload”. Thus,

the costs and complexity of retirement savings decisions could mean that doing nothing is a rational response for consumers, something competition authorities must recognise, rather than assuming irrational consumers are the source of the problem.

Financial literacy initiatives can help address such competition issues. Public information and education campaigns can promote understanding about saving for retirement. Such efforts are in line with the OECD Recommendation of the Council on Financial Literacy, which states that policy makers should promote awareness and understanding about financial services and their risks, empower individuals to evaluate products, services and providers available to them, promote awareness and understanding of individuals' rights and responsibilities, prompt individuals to act in ways that are beneficial to them, and provide unbiased generic advice to guide individuals through complex systems. It also states that financial literacy campaigns should identify target audiences and address them through effective tailored initiatives (OECD, 2020[52]). Effective initiatives can include financial education in schools and campaigns targeted at particular groups, such as employees (OECD, 2022[103]). These initiatives can have the effect of improving financial knowledge, which in turn can address consumer disengagement. Policy makers have also undertaken initiatives to prompt providers to address consumer disengagement. For instance, in the United Kingdom, the Financial Conduct Authority requires providers to send a wake-up pack to consumers within two months of reaching the age of 50 to provide them with relevant and adequate information about their retirement options. They should follow a simple format, with a single summary page document, a fact sheet, and risk warnings. Their design intends to be uncomplicated and easy to understand.

Consumer protection regime to ensure healthy competition

Finally, beyond addressing demand-side and supply-side impediments to competition in a market for asset-backed pension provision, policy makers also need to have a robust complementary consumer protection regime.[65] Such a regime refers to the regulatory measures and supervisory controls over market practices and pension providers, to protect members and beneficiaries in a system (Paklina, 2016[104]). Consumer protection warrants special consideration in the context of competition in a market for asset-backed pension provision. This is because pensions represent a unique segment of a financial market that is characterised by long-term contracts, complex transactions, products that can be difficult for consumers to understand, and a generally disengaged client base. Pension providers may, intentionally or otherwise, take advantage of such a situation. Consumers would be particularly vulnerable absent oversight from regulatory, supervisory, and competition authorities and there is vast scope for market failures to arise.[66] Policy makers across different countries have a range of practices aimed at enhancing consumer protection (Paklina, 2016[104]).[67] The potential interventions that are particularly pertinent to regulating competition are listed below, noting that measures are not typically taken in isolation, but as a collection of efforts. Further, there exists a natural overlap between some measures that improve competition and those that aim to better protect consumers.

- *Regulation of pension product design*. The design of products has a bearing on the value that members will get from their products, so standardising products or putting in place approval mechanisms for financial products can improve the standards for appropriate products. Supervisors can also choose to ban certain products.
- *Regulation of pension product marketing*. Regulating the way providers market products helps avoid situations of inexperienced or vulnerable consumers purchasing inappropriate or unsuitable products. In many countries, policy makers evaluate and monitor the advertising and sales strategies pension providers use to attract new members. In some, the use of advertising or sales forces is prohibited.
- *The regulation of financial advice*. Many countries have regulated the quality of financial advice consumers receive. Measures include imposing a best-interest obligation on advisors giving personal advice to clients, introducing a ban on conflicted remuneration, or lifting the professional, educational and ethical standards of financial advisers.

- *Governance regulations*. Governance regulations reduce potential conflicts of interest and other shortcomings. Governance rules are one of the main avenues to protect pensions against mismanagement in the context of poor individual understanding and stickiness of clientele that should switch. Governance requirements that can help protect against activities that harm consumers include board suitability requirements and assessment processes, disclosure and reporting requirements, and measures to address conflicts of interest.
- *Consumer education and financial literacy programmes*. As discussed above, these aim to improve awareness of pension issues and the literacy of individuals.

Direct market interventions

Policy makers in some jurisdictions have directly intervened in markets for asset-backed pension provision upon finding that efforts to improve competition were not enough to bring down fees. Examples of such efforts include pricing regulations like charge caps to explicitly control fees, and performance fees to better align fees with outcomes (OECD, 2018[105]). Some countries have relied on structural solutions, which involve direct intervention in the structure of a market. These include taking steps like introducing tender or auction mechanisms for the right to act as a default provider, forcing providers to compete. Other approaches have included setting up low-cost centralised institutions that compete with other market participants (OECD, 2018[105]). Having default pension products or providers is another way policy makers have aimed to bring down prices. They are a strong tool to address fee levels in the market, since rival providers will need to compete with a default.

Avoiding the duplication of accounts

The international experience has also shown that people may pay high fees because they have duplicate accounts. A proliferation of inactive accounts is commonplace in many jurisdictions, particularly those that have mandatory or automatic enrolment into occupational pension plans. Inactive accounts are often due to people moving workplaces, since employees are often assigned to a new fund by default. This can lead to a large number of small pots that can be costly to administer relative to the size of the savings. Further, for members it means they can pay duplicate fees, which can significantly erode retirement savings. It also means that members may pay multiple times for add-ons to pension products, like insurance premiums where they are charged. In response, some jurisdictions have put in place rules such as ‘stapling’ a fund to a member, so their plan follows them when they move jobs. Further, putting in place industry-wide or multi-employer plans has been one way to avoid the creation of new accounts when workers move jobs within the same industry.

1.3.4. Addressing loss of trust and low knowledge about pensions

Many countries have grappled with low trust in asset-backed pension arrangements. Low trust can stem from misinformation or fear of losing potential retirement benefits. In some countries, fixed expectations, such as receiving a certain replacement rate at retirement, are embedded in the public psyche, leading to loss of confidence in the system when people’s expectations are not realised. Furthermore, as successive crises have shown, when asset prices crash, people may understandably feel concern that their retirement savings are disappearing. This can cause people to lose faith in asset-backed pension arrangements, which are particularly vulnerable to swings in financial markets. Further, many countries have experienced a loss of trust in the institutions (both public and private) that are responsible for retirement savings provision. This loss of trust can stem from issues such as low returns, high fees and high-profile governance failures. Experiencing numerous reforms have also caused some populations to question whether asset-backed pension arrangements will exist in the future. This is particularly an issue when populations have witnessed neighbouring countries having renationalised private savings, leading people to worry that their savings may be taken by the government.

Policy makers generally also grapple with people's low level of knowledge about their pensions. Low understanding exacerbates any existing mistrust in a system, since people tend not to trust things they do not understand. Many people do not understand how retirement systems work and lack even basic understanding of financial concepts. This is particularly worrisome in countries with more individualised asset-backed pension arrangements, where people take on greater responsibility for their retirement income adequacy. Policy makers face a major challenge to ensure that people are adequately informed about pension systems and the options they have to improve their financial well-being in retirement.

These challenges call for a range of communication efforts and financial literacy programmes. They can include national communication campaigns that disseminate broad messages about asset-backed pension arrangements and reforms, as well as more tailored campaigns that connect more directly with individuals. Targeted financial literacy interventions are also a useful way policy makers have aimed to engage individuals with their pensions.

Ongoing national pension communication campaigns should be part of an overall national strategy for financial education aimed at improving the financial awareness and literacy of a population. This is in line with the OECD Recommendation of the Council on Financial Literacy (OECD, 2020[52]). National pension communication campaigns are effective when designed according to clearly set and measurable objectives (OECD, 2014[26]). These objectives may be defined by governments, pension supervisory authorities or other public entities, possibly in consultation with stakeholders. Some key objectives directly relevant to efforts to keep asset-backed pension arrangements robust and functioning well include raising public awareness about retirement savings, strengthening public trust in the institutions that deliver them, improving people's understanding and knowledge about retirement income, or influencing individual behaviours with respect to saving. Many policy makers view such initiatives as ongoing priorities and have recurrent public campaigns to achieve their objectives.

Countries have also taken varied approaches to providing routine communication that helps increase people's general levels of knowledge about pensions. Most jurisdictions have websites and other public documentation that help people understand asset-backed pension systems. Those that are most effective provide simple and clear messages that are free of jargon and easily accessible. Some jurisdictions have more recently also employed more innovative approaches to communicate with the public. The Swedish pensions dashboard (*Minpension*), for example, has Facebook, Twitter, and Instagram accounts, which it uses to promote key pension issues and to entice members of the public to engage with the dashboard. The site also has a blog and a podcast where experts talk about issues affecting people's pensions. Private sector operators have also launched a Pension Awareness Week in Ireland and a Pension Awareness Day in the United Kingdom. These initiatives aim to raise awareness about financial planning through roadshows, seminars and online tools delivered in an interactive and accessible format.[68]

To complement broad messaging efforts, policy makers in many countries also provide more personalised information to the public. Personalised information that is easy to access and understand is particularly useful, since people are more likely to respond to information they perceive as relevant to them. Many countries have therefore taken steps to communicate with the public through pension statements and online tools. The Swedish Government, for example, sends out the well-known annual pension statement, the 'Orange Envelope', to individuals. The statement provides information on the value of people's different pension schemes and their evolution over time, contributions, as well as performance and administrative fees. The *Minpension* dashboard site was also established to provide real-time information about pensions from the different available schemes, including private pensions, by automatically collecting pension information from different pension companies. It shows the user the current value of pension entitlements, a projection of potential retirement income and a simulator to model changes in the projection at different retirement ages. Additionally, in the United States, the Setting Every Community Up for Retirement Enhancement Act of 2019 (SECURE Act) amended ERISA's participant disclosure rules to require that administrators of DC plans provide participants with two new "lifetime income illustrations" at least annually. The new disclosure purports to help participants prepare for retirement by providing two alternative

illustrations of their estimated monthly payments if their account balance was converted into a stream of lifetime payments, either a single life annuity, or a qualified joint and survivor annuity.[69]

Further to personalised communication efforts, policy makers can also use targeted financial education interventions in order to keep people informed and engaged about their pensions. Targeted interventions differ from broader communication campaigns in that they are more focused attempts at engaging people. When designing targeted financial education interventions for retirement saving, policy makers can consider different components, such as setting (schools, workplaces, the community, the home, etc.), mode of delivery (video, in person, online, written material, etc.), timing (random, teachable moments), duration, and frequency (Atkinson et al., 2015[106]). And indeed, there are many examples of such interventions from OECD countries. To name a couple, these include interventions in the workplace (e.g. seminars, workshops, financial advice, financial wellness programmes) (OECD, 2022[103]) and interactive tools that make engaging with pensions more palatable (e.g. gamification) (Atkinson et al., 2015[106]).

In addition to efforts to inform people about pensions in a general sense, policy makers have also taken steps to directly address loss of trust in pension arrangements. Policy makers in some jurisdictions have released information aimed at countering misinformation or unrealistic expectations. For example, the Chilean Pension Superintendence has set up a web page explaining myths and truths about the pension system. The page aims at dispelling myths that lead to overestimations about potential retirement incomes.[70] Further, major events, such as crises, have called for specific campaigns to help restore confidence in a system. For example, around the time when financial markets crashed in 2020, the Australian regulators issued guidance to trustees that they should communicate often, clearly and accurately to members, providing balanced and factual information.[71] Similarly, the Pensions Regulator in the United Kingdom issued guidance to trustees, suggesting that they review their member communications, highlighting how volatility can affect members over different time periods, and advising members to carefully consider getting investment advice before switching funds in the current market.[72]

Further to communication and education efforts, policy makers should consider and address how their policy decisions could lead to a loss of trust. Messaging efforts and educational campaigns are one way to help improve people's knowledge about pension systems, by boosting trust through greater understanding. Addressing shortcomings such as governance failures, low returns, and high fees can also help manage loss of trust. Policy makers should deal with such issues in a timely way, so that the public can see the government is rectifying problems with the system. There should also be appropriate dispute resolution processes for members to raise any concerns and achieve a timely resolution. Ideally, however, policy makers should take steps to prevent any issues from arising in the first place, rather than respond to shortcomings after they arise and erode trust in a system. In doing so, public communication campaigns can then focus on the high design and governance standards of those arrangements. Furthermore, policy makers can take steps to avoid a perception that asset-backed systems may not exist in the future, by avoiding repeated reforms that confuse people and foment fears that their savings will not exist to finance their retirement.

1.3.5. Ensuring strong risk management processes to protect pension assets

Maintaining and strengthening asset-backed pension arrangements requires appropriate risk management to ensure those arrangements are resilient and responsive to risks. Policy makers and pension providers have a number of potential risks to contend with in order to protect the interests of members and ensure their assets are being managed appropriately. Relevant categories of risk to pension arrangements include investment risk, counterparty risk, liquidity risk, operational risk, external risks, and so on. Pension funds offering DB arrangements or guarantees also need to manage the risk they may not be able to meet their benefit promise. The importance of monitoring and managing these risks is addressed in the OECD Core

Principles of Private Pension Regulation (OECD, 2016[1]) and in the OECD/IOPS Good Practices for Pension Funds' Risk Management Systems (OECD/IOPS, 2011[107]).

Regulators and supervisors face the ongoing challenge of ensuring that pension entities have suitable risk management processes in place. A good risk management process calls for having a governing body that defines and implements a risk management system. That system includes strategies, processes, and reporting procedures to identify, measure, assess, control and report on risks. Having a good risk management process also calls for a governing body that ensures the system is working well and adapts it when necessary. It also means having an investment policy that makes it possible to identify and manage investment risk. This policy could cover elements such as asset allocation, performance objectives, diversification, liquidity needs, and how the fund will cover ESG risks.

Further, pension entities should have internal control mechanisms and good information and reporting channels, as part of their risk management. Internal controls refer to physical controls for checking compliance with policies as well as processes of verification. Internal controls also refer to internal audit and compliance functions that report directly to a governing board on matters regarding financial reporting, fraud, safeguarding assets, and compliance with laws. For risk management systems to operate well, effective information flows are also necessary. That is, the organisation should have information flowing upward and downward. Upward information flows ensure a governing body is aware of any risks, while downward information flows ensure policies and procedures are communicated to lower-level personnel (OECD/IOPS, 2011[107]).

1.4. Policy guidelines for developing asset-backed pension arrangements

Developing, introducing and expanding, asset-backed pension arrangements is a relevant policy option for many countries in order to diversify the sources to finance retirement and make pension systems more resilient. Assessing the reforms that have happened to date provide lessons and good practices for others, and it is clear that this process is by no means easy or straightforward. This is why it is important to take stock of countries' experiences, with a view to sharing best practices and lessons countries have learned along the way.

This chapter explored different stages in developing asset-backed pension arrangements. It focused first on the practical matters policy makers may need to consider ahead of introducing or reforming asset-backed pension arrangements, looking at the essential structural, legal, and practical considerations that are important to consider ahead of the reform. The chapter then considered the implementation phase of such a reform. This phase is concerned with making sure regulators and supervisors have the right operations, powers and functions in place to regulate and oversee the new asset-backed pension arrangements, and that pension providers are well aware of what their role will be. This phase is also the right time for policy makers to consider the different costs of reform and to communicate about the reform to individuals. Finally, the chapter discussed key considerations for policy makers in maintaining or strengthening existing asset-backed pension arrangements in order to ensure their continued success. It discussed the main challenges that policy makers face in maintaining asset-backed pension arrangements related to governance, investment performance, competition, loss of trust in pension systems, low levels of knowledge about pensions, and risk management processes.

The main policy guidelines distilled for each of the three stages are summarised below (Table 1.1 to Table 1.3).

Table 1.1. Summary: Key considerations ahead of introducing or reforming asset-backed pension arrangements

	Key considerations ahead of introducing or reforming asset-backed pension arrangements
Institutional structure	• Type of provider and degree of integration into existing financial service entities • Legal structure of providers • Split of services by different entities
Governance	• Having an independent governing board • A clear mission statement • Balancing stakeholder representation and expertise • Addressing any conflicts of interest • High standard of disclosure and transparency
Managing situations of immature financial markets	• Developing financial markets and asset-backed pension arrangements in tandem • International diversification of investments
Managing inflation risks	• Inflation-indexed bonds • Diversification of investments
Supervisory structure	• Whether to rely on existing arrangements or set up a new supervisory regime
Protecting assets	• Protection from provider insolvency • Ring-fencing assets • Audit requirements • Ensuring existing structures uphold the rights of members and beneficiaries
Building support for change	• Raising public awareness of a case for reform • Reaching a consensus with key veto groups

Table 1.2. Summary: Key considerations during the implementation phase of reforms developing asset-backed pension arrangements

	Key considerations during the implementation phase
Operational capabilities to regulate and supervise new arrangements	• Government agencies' operations, systems, procedures and staff are fit for purpose • Smooth collaboration and information sharing between different government agencies
Licensing requirements	• Re-examining licensing procedures and addressing existing shortcomings • Allowing sufficient time for pension entities to adapt to new licensing procedures • Balancing complexity and efficiency of licensing procedures
Supervisory functions and framework	• Ensuring the supervisor's capacity and functions are in line with the goals of the reform • Setting up or adapting monitoring, inspection and sanction systems
Contribution collection	• Whether contributions are remitted to a government agency or directly to the pension entity
Record keeping	• Whether record keeping is centralised or under the responsibility of pension entities • Data security
Data reporting	• Taking stock of data needs • Balancing the benefits and the costs of data reporting
Costs of reforms	• Considering both costs arising from structural reforms and administrative costs • Considering the different financing arrangements and their implications for different groups of individuals • Considering spreading the costs when initial cohorts disproportionately bear costs
Communication about reforms	• Clear and simple messages • Supporting choice • Using different channels and tailor messages to audiences • Controlling the narrative about reforms • Timely messages • Messages in line with any default rules • Specialised communication to employers

Table 1.3. Summary: Key considerations to maintain and strengthen existing asset-backed pension arrangements

	Key considerations to maintain and strengthen asset-backed pension arrangements
Addressing governance shortcoming	• Addressing governing body skill and knowledge deficiencies through more stringent standards, internal or external governance reviews, training programmes, and information campaigns • Ensuring a high standard of oversight for outsourced functions by amending reporting and disclosure requirements • Encouraging greater scheme consolidation • Addressing conflicts of interest by clarifying governance expectations, strengthening internal controls, promoting the presence of independent members on boards, and having stringent legal frameworks targeting certain categories of conflicts of interest • Encouraging industry-led initiatives to improve diversity in governing bodies
Improving investment returns	• Loosening investment restrictions • Nudging people away from guaranteed-return products, in particular when the asset-backed arrangement is a small component of the overall pension system • Educating people so they can select an investment strategy in line with their risk tolerance • Designing default investment strategies that match people's risk exposure with their age • Penalising poorly performing providers with measures stimulating competition
Aligning fees with the costs of the services	• Fostering competition by reducing barriers to entry, standardising products, reducing search and switch costs for members, or promoting awareness and understanding about asset-backed pension arrangements to empower individuals to exercise competitive pressure • Developing a robust consumer protection regime by regulating product design, marketing initiatives and financial advice, as well as through good governance and consumer education
Addressing loss of trust and low financial knowledge	• Developing a range of communication efforts and financial literacy programmes through national communication campaigns, tailored campaigns that connect more directly with individuals, and targeted financial literacy interventions
Risk management processes	• The governing body defines and implements a risk management system • Internal control mechanisms, and good information and reporting channels

1.4.1. Ahead of introducing of reforming an asset-backed pension arrangement

Ahead of introducing or reforming an asset-backed pension arrangement, policy makers should consider the different aspects of institutional and legal set-up when deciding how the pensions industry will function. There are trade-offs involved in the choice of pension provider for prospective pension arrangements, depending on whether pension entities would be part of existing financial entities' functions, or set up as independent standalone entities. Policy makers should consider factors such as which entities can provide good value, what would be convenient and simple, which providers the public would trust, and concerns about market concentration. Relatedly, policy makers need to select the legal structures for pension funds and decide the types of services that different entities would perform within the asset-backed pension arrangement structure.

Another important consideration is governance. Governance regulation should aim to avoid a situation where board members' responsibilities are unclear, where stakeholder representation on boards leads to poor outcomes for members, and governing boards have conflicts of interest. These risks call for regulations around membership of boards and impose minimum 'fit and proper' requirements, suitability standards, and penalties for breaches of duty.

Policy makers may also need to plan for and address situations of inflation risk and instances of having few investment instruments. Approaches to address these risks depend on different countries' contexts and the trade-offs involved. These include having a strategy to develop financial markets at the same time as asset-backed pension arrangements, allowing offshore investment, and issuing specialised bonds.

To complement regulatory changes, it can be important to revise any supervisory arrangements in place. This can include setting up a specialised supervisor in light of the new asset-backed pension arrangements and making clear key supervisory duties that will allow policy makers to instil trust in the system.

Mechanisms may also be needed to protect the assets held in asset-backed pension arrangements. This can include legislation to protect members from insolvent providers or sponsors, requirements to ring-fence assets, and audit rules.

Policy makers also need to build support for change. They can do so by commissioning independent reviews and engaging in public information campaigns aimed at educating the public about the need for reform. They can also complement such efforts with targeted engagement with key players such as social partners, since consensus for reform is essential to success.

Taking such considerations into account allows policy makers to send clear messages to the public ahead of undertaking reforms that introduce or expand asset-backed pension arrangements. That is, alongside a certain design, asset-backed pensions will have a reliable institutional set-up. Those who govern the pension providers will do so independently and without conflict. Conditions will adapt so savings can be invested in a range of instruments and protected from the risk of devaluation. A reliable supervisor will promote the stability, security, and good governance of pension funds. The legal system will protect assets and uphold members' rights. And finally, there is a real case for change that the public can get behind.

1.4.2. Implementation phase of a reform to develop asset-backed pension arrangements

When implementing a reform that introduces or expands an asset-backed pension arrangement, policy makers need to consider how to operationalise the main functions that will underlie new or reformed schemes. This entails defining or revising the new roles and functions that regulators, supervisors, and pension entities will have to assume. Key considerations include:

- Governments might need additional operational capabilities to handle new or reformed asset-backed pension arrangements. They may need to reform or update government agencies' functions, for example by building new operating systems, introducing new practices, training staff, and setting up collaboration mechanisms between different agencies.

- Supervisory authorities may need to revise licensing requirements for pension entities, supervisory powers, and procedures to monitor the activities of providers and resolve problems.
- Policy makers may also need to consider key aspects of account administration, such as contribution collection, record-keeping, and data reporting. Namely, they may wish to reconsider whether such functions should be centralised or done by providers, and what data they need to collect.

Policy makers also need to consider the cost of developing asset-backed pension arrangements. Any fiscal deficits that arise due to structural reforms come with costs. Those costs depend on the extent to which an asset-backed system replaces an unfunded one, diverting contributions from unfunded to asset-backed arrangements. Administrative costs can also arise because a new system may require greater public functions such as regulation, supervision, guarantees, or financing. Different cohorts of individuals may bear these costs, depending on the structure of financing arrangements. Relatedly, reforms themselves can lead to some individuals being worse off than others. These issues mean that policy makers face the challenge of estimating and financing the costs of a reform, while also bearing in mind the impacts those changes may have on individuals.

Finally, policy makers should bear in mind the lessons from other countries' experiences when communicating about their own reform.

- Communication should be clear and simple to make it most effective and should avoid complex concepts that can overwhelm people.
- Policy makers have a role in supporting people who have to make choices, by providing information in a clear way, making available digital tools, and potentially providing advice services.
- Policy makers can make use of different distribution channels to disseminate information and tailor it to audiences. Different distribution channels include traditional media like the press and more recent developments like social media.
- Policy makers should control the narrative about the reform and ensure that communication does not lead to unrealistic expectations, which can erode people's confidence in the schemes over time.
- Timeliness makes communication campaigns more effective.
- Any communication on reforms that rely on default rules should complement that rule, such that the communication and policy strategies are aligned.
- Policy makers should remember to include employers in their communication strategy, and bear in mind the particular communication needs that come with their added responsibilities.

1.4.3. Maintaining or strengthening an existing asset-backed pension arrangement

Policy makers find themselves needing to take steps to maintain and strengthen asset-backed pension arrangements, even when those arrangements are set up and implemented well as many issues can arise that prevent them from achieving their objectives.

Policy makers should address governance shortcomings when existing requirements are not enough to forestall governance failures. The main ongoing issues for policy makers have been a lack of governing body skill, poor oversight of outsourced functions, failures to merge or consolidate, conflicts of interest, and a lack of diversity among governing body members. Countries have addressed these different areas of concern by:

- Assessing board performance through self-assessment processes, external expert reviews, or internal governance structures.
- Improving governing body skills through ongoing training programmes and educational campaigns.

- Amending reporting and disclosure requirements to better document outsourced activities, increasing transparency and accountability.
- Requiring or nudging schemes with poor performance to consolidate.
- Clarifying conflict of interest rules though educational support and test cases.
- Requiring better internal controls and independent governing body members to better identify and manage conflicts of interest.
- Encouraging greater diversity among governing bodies.

Policy makers should also create a favourable environment to improve investment returns. Low investment returns can lead to criticisms that asset-backed pension arrangements are not succeeding in growing assets enough to fund retirement. This is particularly a concern for DC arrangements. Low returns can be due to over-investment in traditional asset classes or poor performance by investment managers. To address the main drivers of low returns, countries can consider:

- Loosening investment restrictions that constrain investment in riskier asset classes, while strengthening risk management.
- Taking steps to shift away from products with guarantees, which can reduce the scope for investment in higher-return assets. Such steps would be particularly relevant in systems where asset-backed pension arrangements are a smaller component of the broader pension system.
- Implementing default arrangements that assign people to assets suited to their risk and return profiles.
- Policy makers can make use of broad financial education and communication initiatives and encourage providers to better communicate about the different risk and return profiles of investment strategies. This can help address the conservative biases that lead members to favour low-risk investment strategies.
- Taking steps to encourage better performance by investment managers, such as by removing barriers to competition and disclosing to consumers when their funds are underperforming.

Different mechanisms can be put in place to ensure that fees are aligned with the cost of the services offered. A common criticism of asset-backed pension arrangements is that people may view them to be expensive. Fees can be high because of low competition in the market, member disengagement, and the existence of duplicate accounts. Steps taken to address these issues include:

- Fostering competition by addressing supply-side and demand-side factors impeding competition. Measures include reducing barriers to entry, standardising products, reducing search and switch costs for members, or promoting awareness and understanding about asset-backed pension arrangements to empower individuals to exercise competitive pressure.
- Setting up a robust complementary consumer protection regime by regulating product design, marketing initiatives and financial advice.
- Direct intervention in the market, such as charge caps, performance fees, and auction mechanisms. However, policy makers should design these interventions with care and monitor them to ensure they are achieving their goals.
- Stapling funds to members or creating industry-wide or multi-employer plans, to avoid duplicate accounts.

Maintaining asset-backed pension arrangements requires ensuring that people trust pension systems, understand them and understand what they need to do to secure an adequate retirement income. This has been a challenge in many countries. To address loss of trust and low knowledge about pensions, countries have undertaken:

- Pension communication campaigns that raise awareness about retirement savings and influence people's decisions to save more.
- Campaigns that dispel misconceptions about pension systems and reassure people during crises.
- Targeted financial education interventions that reach people through diverse settings, such as workplaces and the community, or through innovative digital tools.
- Policy actions that prevent erosion of trust in pension arrangements, such as those that address governance shortcomings, high fees, or low returns. Policy makers have also established dispute resolution systems to uphold members' interests.

Finally, asset-backed pension arrangements call for resilience and responsiveness to risks. Risks that affect these types of arrangements include investment risk, counterparty risk, liquidity risk, and operational risks. In order to address these risks, countries generally:

- Have in place risk management strategies that include strategies to identify, measure, assess, control and report on risks.
- Have internal control mechanisms, and good information and reporting channels.

References

Ambachtsheer, K., R. Capelle and H. Lum (2008), "The Pension Governance Deficit: Still With Us", *Rotman International Journal of Pension Management*, Vol. 1/1, https://doi.org/10.3138/rijpm.1.1.14. [7]

Ammann, M. and C. Ehmann (2017), "Is Governance Related to Investment Performance and Asset Allocation? Empirical Evidence from Swiss Pension Funds", *Swiss Journal of Economics and Statistics*, Vol. 153/3, pp. 293-339. [64]

Andonov, A., Y. Hochberg and J. Rauh (2018), "Political Representation and Governance: Evidence from the Investment Decisions of Public Pension Funds", *The Journal of Finance*, Vol. 73/5, https://doi.org/10.1111/jofi.12706. [9]

Antolín, P. et al. (2011), "The Role of Guarantees in Defined Contribution Pensions", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 11, OECD Publishing, Paris, https://doi.org/10.1787/5kg52k5b0v9s-en. [85]

AON (2019), *Defined benefit consolidation: what are the opportunities?*, https://www.aon.com/getmedia/3aadb47e-ae30-46ae-97b9-212b35c58901/DB-Consolidation-Brochure-(1).aspx (accessed on 13 September 2021). [114]

Arrau, P. (1990), "Social Security Reform: The Capital Accumulation and Intergenerational Distribution Effect", *Policy, Research, an External Affairs Working Papers*, No. 512, The World Bank, http://documents1.worldbank.org/curated/en/994071468764114118/pdf/multi-page.pdf (accessed on 23 April 2021). [112]

Arteaga García, J. and Ó. Almendárez Carreón (2020), "Medición del grado de competencia en el mercado de Afores: la aplicación del enfoque no paramétrico de la NOIE", *Revista de Economía, Facultad de Economía, Universidad Autónoma de Yucatán*, Vol. 37/95, pp. 30-49, https://doi.org/10.33937/reveco.2020.145. [91]

Atkinson, A. et al. (2015), "Financial Education for Long-term Savings and Investments: Review of Research and Literature", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 39, OECD Publishing, Paris, https://doi.org/10.1787/5jrtgzfl6g9w-en. [106]

Baccaro, L. (2002), "Negotiating the Italian Pension Reform with the Unions: Lessons for Corporatist Theory", *Industrial and Labor Relations Review*, Vol. 55/3, p. 413, https://doi.org/10.2307/2696049. [27]

Barr, N. and P. Diamond (2008), *Reforming pensions: Principles and policy choices*, Oxford University Press. [14]

Bauer, R. et al. (2020), "The impact of trustees' age and representation on strategic asset allocations", *DNB Working Paper*, No. 698, https://www.dnb.nl/media/mqgkvsjb/working_paper_698.pdf (accessed on 2 August 2021). [81]

Baumol, W. (1982), "Contestable Markets: An Uprising in the Theory of Industry Structure: Reply", *The American Economic Review*, Vol. 72/1, http://www.jstor.org/action/showPublisher?publisherCode=aea. (accessed on 2 October 2021). [99]

Bikker, J. and J. De Dreu (2007), "Operating costs of pension schemes", in *Costs and Benefits of Collective Pension Systems*. [71]

Bikker, J. and J. Meringa (2021), "Have scale effects on cost margins of pension fund investment portfolios disappeared?", *DNB Working Paper*, No. 710, De Nederlandsche Bank. [73]

Bikker, J. and L. Spierdijk (2008), "Measuring and explaining competition in the financial sector", *Discussion Paper Series*, No. 09-01, Tjalling C. Koopmans Research Institute, http://www.koopmansinstitute.uu.nl (accessed on 30 September 2021). [92]

Chłoń-Domińczak, A. (2000), "Pension reform and public information in Poland", *SP Discussion Paper*, No. 0019, https://www.researchgate.net/publication/237554 518 (accessed on 23 May 2021). [54]

Claessens, S. (2009), "Competition in the Financial Sector: Overview of Competition Policies", *The World Bank Research Observer*, Vol. 24/1, pp. 83-118, https://doi.org/10.1093/wbro/lkp004. [100]

Clark, G. (2007), "Expertise and representation in financial institutions: UK legislation on pension fund governance and US regulation of the mutual fund industry", *Twenty-First Century Society*, Vol. 2/1, pp. 1-24, https://doi.org/10.1080/17450140601101200. [10]

Clark, G. and R. Urwin (2008), "Best-practice pension fund governance", *Journal of Asset Management*, Vol. 9/1, pp. 2-21, https://doi.org/10.1057/jam.2008.1. [8]

Coase, R. (1937), "The Nature of the Firm", *Economica*, Vol. 4/16, p. 405, https://doi.org/10.2307/2626876. [94]

Commonwealth of Australia (2019), *Final Report Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry*, https://www.royalcommission.gov.au/system/files/2020-09/fsrc-volume-1-final-report.pdf (accessed on 16 July 2021). [12]

De Benedetto, M., F. De Lorenzis and E. Ales (2008), *Le Campagne di Comunicazione Pubblica: Il Caso del Ministero Del Lavoro*, https://tesi.luiss.it/37/1/Riassunto_tesi-De-Lorenzis-Francesco.pdf (accessed on 21 April 2021). [55]

de Mesa, A. and C. Mesa-Lago (2006), "The structural pension reform in Chile: Effects, comparisons with other latin American reforms, and lessons", *Oxford Review of Economic Policy*, Vol. 22/1, pp. 149-167, https://doi.org/10.1093/oxrep/grj010. [38]

De Nederlandsche Bank (2018), *Terugkoppeling onderzoek'inventarisatie uitbesteding'*, https://www.dnb.nl/media/dt3e1qmf/terugkoppeling-onderzoek-inventarisatie-uitbestedingrisicos-pensioenfondsen.pdf (accessed on 6 August 2021). [69]

Deacon, B. (2007), *Global social policy and governance*, Sage. [43]

Department for Work & Pensions (2021), *Future of the defined contribution pension market: the case for greater consolidation*, https://www.gov.uk/government/consultations/improving-outcomes-for-members-of-defined- (accessed on 17 September 2021). [76]

Department for Work & Pensions (2020), *Improving outcomes for members of defined contribution pension schemes*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918860/improving-outcomes-for-members-of-defined-contribution-pension-schemes.pdf (accessed on 3 August 2021). [77]

Department for Work & Pensions (2014), *Automatic enrolment and pensions language guide*, http://www.gov.uk/workplacepensions (accessed on 19 May 2021). [56]

Department for Work & Pensions (2014), *Pensions portfolio: communications tracking research*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/345176/March14_Tracking_FINAL_report_06082 014_RC.pdf (accessed on 19 May 2021). [57]

European Commission (2008), *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ: C:2008:265:0006:0025: en: PDF (accessed on 6 October 2021). [96]

European Commission (2001), "Reforms of pension systems in the EU – an analysis of the policy options", *European Economics*, Vol. 73, pp. 171-222, https://ec.europa.eu/economy_finance/publications/pages/publication1708_en.pdf (accessed on 26 May 2021). [40]

Farsi, M., A. Fetz and M. Filippini (2008), "Economies of Scale and Scope in Multi-Utilities", *The Energy Journal*, Vol. 29/4, https://fr.booksc.eu/book/49214550/5d6b1f (accessed on 11 October 2021). [97]

Feldstein, M. (ed.) (1998), *Pension System Reform: The Mexican Case*. [110]

Feldstein, M. (ed.) (1998), *The Chilean Pension Reform: A Pioneering Program*. [17]

Finanstilsynet (2017), *Pensions when the guarantees disappear: what are the implications for product characteristics and consumer protection?*. [86]

Grandolini, G. and L. Cerda (1999), *Mexico: The 1997 Pension Reform*, https://doi.org/10.1596/1813-9450-1933. [29]

Hall, S. (2010), *Preparing for pension reform: the information needs of small and micro employers at auto-enrolment*, Published for the Department for Work and Pensions under licence from the Controller of Her Majesty's Stationery Office, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/214447/rrep676.pdf (accessed on 20 April 2021). [58]

Holzmann, R. (1997), "Pension Reform, Financial Market Development, and Economic Growth: Preliminary Evidence from Chile", *Staff Papers (International Monetary Fund)*, No. 44(2), IMF, https://about.jstor.org/terms. [18]

Holzmann, R. and R. Hinz (2005), *Old-Age Income Support in the 21st Century*, The World Bank, https://doi.org/10.1596/0-8213-6040-x. [28]

Holzmann, R., L. MacKellar and J. Raspansek (eds.) (2009), *Designing regulatory framework for pension reform and development of financial markets: Estonian experience*, The World Bank, https://www.cef-see.org/pension_reform/Tali.pdf. [4]

Holzmann, R., M. Orenstein and M. Rutkowski (eds.) (2003), *Commitment and Consensus in Pension Reform*, The World Bank. [25]

Holzmann, R. et al. (eds.) (2001), *New Ideas About Old Age Security Toward Sustainable Pension Systems in the 21 st Century*, The World Bank, https://openknowledge.worldbank.org/handle/10986/13857 (accessed on 28 April 2021). [36]

Hu, Y. et al. (2007), "Collective Pension Funds: International Evidence and Implications for China's Enterprise Annuities Reform", *OECD Working Papers on Insurance and Private Pensions*, No. 9, OECD Publishing, Paris, https://doi.org/10.1787/123505600000. [122]

Hu, Y. and F. Stewart (2009), "Licensing Regulation and the Supervisory Structure of Private Pensions: International Experience and Implications for China", *OECD Working Papers on Insurance and Private Pensions*, No. 33, OECD Publishing, Paris, https://doi.org/10.1787/227280580833. [34]

IFF Research (2014), *Defined benefit (DB) scheme running cost research*, https://www.thepensionsregulator.gov.uk/-/media/thepensionsregulator/files/import/pdf/db-scheme-costs-research-2014.ashx (accessed on 10 September 2021). [70]

Iglesias-Palau, A. (2009), "Pension Reform in Chile Revisited: What Has Been Learned?", *OECD Social, Employment and Migration Working Papers*, No. 86, OECD Publishing, Paris, https://doi.org/10.1787/224473276417. [6]

Impavido, G. (2013), "Pension Funds", in *Handbook of Key Global Financial Markets, Institutions, and Infrastructure*, Elsevier, https://doi.org/10.1016/b978-0-12-397873-8.00041-4. [22]

Impavido, G., A. Musalem and D. Vittas (2002), "Contractual Savings in Countries with a Small Financial Sector", *Policy Research Working Paper*, No. 2841, World Bank, http://econ.worldbank.org. (accessed on 9 September 2020). [16]

IOPS (2022), *Good practices for designing, presenting and supervising pension projections*, http://www.iopsweb.org/IOPS-Good-practices-for-designing-presenting-and-supervising-pension-projections-2022.pdf. [50]

IOPS (2018), *Good Practices on the Role of Pension Supervisory Authorities in Consumer Protection Related to Private Pension Systems*, http://www.iopsweb.org/IOPS-Good-Practices-Consumer-Protection.pdf. [118]

IOPS (2008), *IOPS Guidelines for the Supervisory Assessment of Pension Funds*, http://www.iopsweb.org/principlesguidelines/IOPS-Guidelines-Supervisory-Assessment-Pension-Funds.pdf (accessed on 8 September 2021). [113]

Jackowicz, K. and O. Kowalewski (2012), "Crisis, internal governance mechanisms and pension fund performance: Evidence from Poland", *Emerging Markets Review*, Vol. 13/4, pp. 493-515, https://doi.org/10.1016/j.ememar.2012.07.006. [82]

Kay, S. (2009), "Political risk and pension privatisation: The case of Argentina (1994-2008)", *International Social Security Review*, Vol. 62/3, pp. 1-21, https://doi.org/10.1111/j.1468-246x.2009.01335.x. [19]

Keskiner, E. and R. Matthias (2018), *Is big really beautiful? The limits of pension consolidation*, https://www.mckinsey.com/~/media/McKinsey/Industries/Private%20Equity%20and%20Principal%20Investors/Our%20Insights/Is%20big%20really%20beautiful%20The%20limits%20of%20pension%20consolidation/Is-big-really-beautiful-the-limits-of-pension-consolidation.ashx (accessed on 9 September 2021). [75]

Kessler, F. and R. Stern (1959), "Competition, Contract, and Vertical Integration", *The Yale Law Journal*, Vol. 69/1, https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=3733&context=fss_papers (accessed on 6 October 2021). [93]

Konkurrence- og Forbrugerstyrelsen (2019), *Konkurrencen på markedet for pension*, Konkurrence-og Forbrugerstyrelsen, https://www.kfst.dk/media/55800/20191213-pensionsanalyse.pdf (accessed on 6 July 2021). [72]

Law Commission (2013), *Data Sharing Between Public Bodies*, http://lawcommission.justice.gov.uk/consultations/data-sharing.htm. (accessed on 16 May 2021). [30]

Lindbeck, A. and M. Persson (2003), "The Gains from Pension Reform", *Journal of Economic Literature*, Vol. 41/1, pp. 74-112, https://www.jstor.org/stable/pdf/3217388.pdf (accessed on 4 March 2021). [44]

McKinsey Switzerland (2020), *Making up lost ground*, https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Europe/Making%20up%20lost%20ground%20How%20Switzerlands%20second%20pillar%20pension%20funds%20can%20improve%20their%20investment%20performance/Making-up-lost-ground-Full-report.pdf (accessed on 15 September 2021). [67]

Mesa-Lago, C. (2020), *Evaluation of Four Decades of Pension Privatization in Latin America, 1980-2020: Promises and Reality*. [53]

Miller, R. and R. Funston (2014), *Public Pension Governance That Works*, https://www.nasra.org/Files/Topical%20Reports/Governance%20and%20Legislation/FunstonGovernance1403.pdf (accessed on 20 July 2021). [65]

Mitchell, O. (1998), "Insulating Old-Age Systems From Political Risk", *Wharton Pension Research Council Working Papers*, Vol. 524, https://repository.upenn.edu/prc_papers/524. [11]

Myners, P. (2001), *Institutional Investment in the United Kingdom: A Review*. [59]

OECD (2022), "Policy handbook on financial education in the workplace", *OECD Business and Finance Policy Papers*, No. 07, OECD Publishing, Paris, https://doi.org/10.1787/b211112e-en. [103]

OECD (2022), *Recommendation of the Council for the Good Design of Defined Contribution Pension Plans*, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0467. [39]

OECD (2021), *Annual Survey of Investment Regulation of Pension Funds and Other Pension Providers 2021*, https://www.oecd.org/pensions/annualsurveyofinvestmentregulationofpensionfunds.htm (accessed on 30 November 2021). [83]

OECD (2021), *Pension Markets in Focus 2021*, http://www.oecd.org/finance/pensionmarketsinfocus.htm (accessed on 30 November 2021). [115]

OECD (2020), "A framework for assessing the adequacy of retirement income", in *OECD Pensions Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/760ca223-en. [116]

OECD (2020), "Communicating on investment strategies", in *OECD Pensions Outlook 2020*, https://doi.org/10.1787/b1e52a63-en (accessed on 4 February 2021). [45]

OECD (2020), *OECD Reviews of Pension Systems: the Czech Republic*, OECD Reviews of Pension Systems, OECD Publishing, Paris, https://doi.org/10.1787/e6387738-en. [121]

OECD (2020), *OECD/INFE 2020 International Survey of Adult Financial Literacy*, https://www.oecd.org/financial/education/launchoftheoecdinfeglobalfinancialliteracysurveyreport.htm. [102]

OECD (2020), *Recommendation of the Council on Financial Literacy*, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0461 (accessed on 15 March 2021). [52]

OECD (2020), "Retirement savings and old-age pensions in the time of COVID-19", in *OECD Pensions Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/b698aae4-en. [37]

OECD (2020), "Switching investments in defined contribution retirement savings arrangements", in *OECD Pensions Outlook 2020*, https://doi.org/10.1787/67ede41b-en. [88]

OECD (2019), *OECD Reviews of Pension Systems: Peru*, OECD Reviews of Pension Systems, OECD Publishing, Paris, https://doi.org/10.1787/e80b4071-en. [90]

OECD (2019), *Vertical Mergers in the Technology, Media and Telecom Sector*, https://www.oecd.org/competition/vertical-mergers-in-the-technology-media-and-telecom-sector.htm (accessed on 6 October 2021). [95]

OECD (2018), "Improving retirement incomes considering behavioural biases and limited financial knowledge", in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-8-en. [89]

OECD (2018), "Pension costs in the accumulation phase: Policy options to improve outcomes in funded private pensions", in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-6-en. [105]

OECD (2018), “Strengthening the application of OECD Core Principles of Private Pension Regulation: Lessons from Investment Institutions”, in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-7-en. [3]

OECD (2018), “The role of supplementary pension provision in retirement”, in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-4-en. [120]

OECD (2016), *OECD Core Principles of Private Pension Regulation*, https://www.oecd.org/finance/principles-private-pension-regulation.htm. [1]

OECD (2016), *OECD Reviews of Pension Systems: Mexico*, OECD Reviews of Pension Systems, OECD Publishing, Paris, https://doi.org/10.1787/9789264245938-en. [101]

OECD (2016), *Pension Markets in Focus 2016*, http://www.oecd.org/daf/pensions/pensionmarkets. (accessed on 20 July 2021). [74]

OECD (2016), “Policy measures to improve the quality of financial advice for retirement”, in *OECD Pensions Outlook 2016*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2016-6-en. [51]

OECD (2016), “The changing pensions landscape: The growing importance of pension arrangements in which assets back pension benefits”, in *OECD Pensions Outlook 2016*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2016-4-en. [119]

OECD (2015), *Regulation of Insurance Company and Pension Fund Investment: OECD Report to the G20 Finance Ministers and Central Bank Governors*, https://www.oecd.org/g20/summits/antalya/Regulation-of-Insurance-Company-and-Pension-Fund-Investment.pdf (accessed on 28 August 2020). [13]

OECD (2014), “Pension communication: Pension statements and national campaigns”, in *OECD Pensions Outlook 2014*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2014-8-en. [26]

OECD (2012), *OECD Recommendation on High-Level Principles on Financial Consumer Protection*, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0394. [117]

OECD (2011), *Estonia: Review of the Private Pension System*, http://www.oecd.org/finance/private-pensions/49498084.pdf. [23]

OECD (2011), *Israel: Review of the Private Pension System*, https://www.oecd.org/daf/fin/private-pensions/49498122.pdf. [21]

OECD (2008), *Private Pensions and Government Information Campaigns: Lessons from OECD Countries*, http://www.oecd.org/dataoecd/7/17/35108560.pdf (accessed on 23 May 2021). [47]

OECD (2008), *Reforms for Stability and Sustainable Growth: An OECD Perspective on Hungary*, OECD Publishing, Paris, https://doi.org/10.1787/9789264043770-en. [123]

OECD/IOPS (2011), *OECD/ IOPS Good Practices for Pension Funds’ Risk Management Systems*, http://www.iopsweb.org/dataoecd/31 March 43946778.pdf (accessed on 12 November 2021). [107]

OECD and IOPS (2007), *The licensing of private entities in private pension systems*, https://www.oecd.org/daf/fin/private-pensions/39035914.pdf (accessed on 14 April 2020). [32]

OMB Research (2019), *Defined Contribution trust-based pension schemes research*, https://www.thepensionsregulator.gov.uk/-/media/thepensionsregulator/files/import/pdf/dc-research-summary-report-2019.ashx (accessed on 3 August 2021). [60]

Paklina, N. (2016), "The Role of Supervision Related to Consumer Protection in Private Pension Systems", *IOPS Working Papers on Effective Pensions Supervision* 7, http://www.iopsweb.org/WP_27_Role-Supervision-Consumer-Protection.pdf (accessed on 15 October 2021). [104]

PLSA (2016), "Embracing Diversity", *Viewpoint* 3, https://www.plsa.co.uk/Portals/0/Documents/Viewpoint/2016/Viewpoint%20Issue%203%202016%20FINAL.pdf?ver=2017-10-09-134620-120 (accessed on 2 August 2021). [80]

Productivity Commission (2018), *Competition in the Australian Financial System, Inquiry Report*, https://www.pc.gov.au/inquiries/completed/financial-system/report/financial-system.pdf (accessed on 11 October 2021). [98]

Productivity Commission (2018), *Superannuation: Assessing Efficiency and Competitiveness*, http://www.pc.gov.au (accessed on 6 July 2021). [62]

Queisser, M. (1998), "The Second-Generation Pension Reforms in Latin America", *Ageing Working Papers* 5.4, https://www.oecd.org/els/public-pensions/2429287.pdf. [2]

Regeringskansliet (2017), *Pilot study of possible structural changes for a more secure and more efficient premium pension system*. [49]

Reish, C. and J. Faucher (2009), *The Fiduciary Duty to Avoid Conflicts of Interest in Selecting Plan Service Providers*, https://www.napa-net.org/sites/napa-net.org/files/WP%20-%20Conflicts%20of%20Interest.pdf (accessed on 17 November 2021). [79]

Riksrevisionen (2004), *Premiepensionens första år*, https://www.riksrevisionen.se/download/18.78ae827d1605526e94b2de0d/1518435508130/RiR_2 004_16.pdf (accessed on 18 May 2021). [48]

Rinaldi, A. (2010), "Pension Awareness and Nation-Wide Auto-Enrolment: The Italian Experience", *CERP WP*, No. 104/11, https://www.cerp.carloalberto.org/wp-content/uploads/2011/02/wp_104.pdf (accessed on 20 April 2021). [33]

Rocha, R., R. Hinz and J. Gutierrez (2001), "Improving the Regulation and Supervision of Pension Funds: Are There Lessons from the Banking Sector?", in Holzmann, R. et al. (eds.), *New Ideas about Old Age Security*. [31]

Roldos, J. (2004), "Pension Reform, Investment Restrictions, and Capital Markets", *IMF Policy Discussion Paper*, Vol. 4, https://www.elibrary.imf.org/view/IMF003/05186-9781451973730/05186-9781451973730/05186-9781451973 730_A001.xml?language=en&redirect=true. [15]

Rudolph, H. (2019), "Pension Funds with Automatic Enrollment Schemes Lessons for Emerging Economies", *Policy Research Working Paper* 8726, https://documents1.worldbank.org/curated/en/368081549376313709/pdf/WPS8726.pdf. [46]

Sales-Sarrapy, C. and F. Solis-Soberon (1998), "Pension System Reform: The Mexican Case", in Feldstein, M. (ed.), *Privatizing Social Security*, University of Chicago Press. [111]

Saráchaga, R. (2019), *Uruguay: The case of Wage-Linked Soveriegn Bonds*, http://pubdocs.worldbank.org/en/745511554741389877/Long-terms-bonds-The-case-of-Uruguay-3-04-2019-1.pdf. [108]

Schich, S. (2019), "Beyond Conventional Sovereign Debt Instruments: Issuance of GDP-linked Bonds in OECD Countries?", *Journal of Economic Science Research*, Vol. 2/2, https://doi.org/10.30564/jesr.v2i2.474. [109]

Steele, J. and P. Litner (2017), "The evolution of governance", *Pension & Benefits Review*, Vol. 1/2, https://www.osler.com/osler/media/Osler/reports/pensions-benefits/Pension-plan-governance-in-Canada-Trends.pdf (accessed on 22 July 2021). [78]

Stewart, F. and J. Yermo (2008), "Pension Fund Governance: Challenges and Potential Solutions", *OECD Working Papers on Insurance and Private Pensions*, No. 18, OECD Publishing, Paris, https://doi.org/10.1787/241402256531. [5]

Superintendency of Pension Fund Administrators (2010), *The Chilean Pension System*, https://www.spensiones.cl/portal/institucional/594/w3-article-3523.html (accessed on 23 April 2021). [41]

Talsma, I. (2018), *Uitbesteding: groeien*, https://www.dnb.nl/media/5shng3em/uitkomsten-inventarisatie-uitbesteding-pensioenfondsen.pdf. [68]

Tapia, W. and J. Yermo (2008), "Fees in Individual Account Pension Systems: A Cross-Country Comparison", *OECD Working Papers on Insurance and Private Pensions*, No. 27, OECD Publishing, Paris, https://doi.org/10.1787/236114516708. [35]

Tapia, W. and J. Yermo (2007), "Implications of Behavioural Economics for Mandatory Individual Account Pension Systems", *OECD Working Papers on Insurance and Private Pensions*, No. 11, OECD Publishing, Paris, https://doi.org/10.1787/103002825851. [87]

The Pensions Board (2006), *Report of the Pensions Board to the Minister for Social and Family Affairs on Trusteeship*, https://www.pensionsauthority.ie/en/trustees_registered_administrators/policy/reports_to_the_minister_for_social_protection/trusteeship_report_november_2 006_.pdf (accessed on 23 July 2021). [63]

The Pensions Regulator (2019), *Future of trusteeship and governance consultation*, https://webarchive.nationalarchives.gov.uk/ukgwa/20191028122301/https://www.thepensionsregulator.gov.uk/en/document-library/consultations/future-of-trusteeship-and-governance-consultation (accessed on 30 July 2021). [61]

Valdes-Prieto, S. (2001), "Comments by Salvador Valdes-Prieto, Catholic University of Santiago, Chile", in Holzmann, R. et al. (eds.), *New Ideas about Old Age Security*. [42]

Van Dalen, H. et al. (2012), "Decision making by pension fund trustees in the face of demographic and economic shocks: a vignette study", *Journal of Pension Economics & Finance*, Vol. 11/2, pp. 183-201, https://doi.org/10.1017/S1474747211000631. [66]

van Meerten, H. (2009), "Pensions reform in the European Union: Recent developments after the implementation of the IORP directive", *Pensions: An International Journal*, Vol. 14/4, pp. 259-272, https://doi.org/10.1057/pm.2009.22. [24]

Vittas, D. (1999), *Regulatory Controversies of Private Pension Funds*, The World Bank, https://doi.org/10.1596/1813-9450-1893. [20]

World Bank (2000), *Portfolio Limits: Pension Investment Restrictions Compromise Fund Performance*, http://www.worldbank.org/pensions (accessed on 1 November 2021). [84]

Notes

[1] Analyses of the growth of asset-backed pension arrangements are available in OECD (2016[119]), OECD (2018[120]), and OECD (2021[115]).

[2] In Figure 1.1 "~" means around. The chart shows the amount of assets in funded and private pension plans, expressed as a % of GDP, at the end of 2001 and 2021 or the nearest year available, when possible. Instead of 2001, data refer to the end of: 2005 for Belgium, Luxembourg and Mexico; 2006 for France; and 2007 for Greece. Data for Lithuania and Ireland are not available for the earliest time reference (~2001). Instead of 2021, data refer to the end of 2020 for Belgium and France. There is a methodological break in series for some jurisdictions (namely Belgium, Canada, Costa Rica, Finland, Hungary, Iceland, Portugal, the Slovak Republic and Switzerland) between 2001 and 2021, which needs to be accounted for when analysing the evolution of the amount of assets. OECD (forthcoming[124]) contains more country-specific notes.

[3] Authorisation or licensing criteria are concerned with factors such as having a business plan, a starting capital, 'fit and proper' requirements, and so on.

[4] However, it is important to strike a good balance in the number of providers to encourage competition, while avoiding unsustainable and underperforming providers.

[5] Not-for-profit entities can also suffer from conflicts of interest. For example, when Hungary had mandatory individual DC accounts, most pension funds were not-for-profit institutions sponsored by financial institutions. While the fact that members of the board of directors and the board of supervisors were selected by the annual general assembly should have aligned the interest of members with those of fund managers, in practice, financial institutions found it easy to put their candidates on the supervisory board (OECD, 2008[123]). Ultimately, the governing bodies of the not-for-profit funds were generally ineffective in looking after the best interest of members (Stewart and Yermo, 2008[5]). This was even clearer when evidence emerged showing that pension funds sponsored by financial institutions tended to charge higher fees than funds sponsored by large employers (OECD, 2008[123]).

[6] Core Principle 4.14 states that portfolio limits that inhibit adequate diversification or impede the use of asset-liability matching or other widely accepted risk management techniques and methodologies should be avoided. The matching of the characteristics of assets and liabilities (such as maturity, duration, currencies, etc.) should not be impeded.

[7] This was not due to investment restrictions forcing investments into government bonds. Rather, retirement savings investors had few alternatives. Investment-grade investment instruments were in short

supply because larger firms found it cheaper to borrow from banks than to turn to the capital markets, while smaller firms did not meet investment-grade requirements.

[8] In Chile, fund managers were allowed to invest up to 9% of the fund in foreign securities only by 1992 (Edwards, 1998[17]). Similarly, Mexico only allowed investment in foreign instruments in the case of Mexican issuers in the early years of the asset-backed pension arrangements (Sales-Sarrapy, Solis-Soberon and Villagomez-Amezcua, 1998[110]). Colombia, on the other hand, did not impose such restrictions on overseas investment (Queisser, 1998[2]).

[9] The United Kingdom has been issuing inflation-linked bonds since 1981, Australia since 1985, Canada since 1991, Sweden since 1994, the United States since 1997, France since 1998, Italy since 2003, Japan since 2004 (in this case deflation-linked bonds) and Germany since 2006 (Schich, 2019[109]).

[10] The constitutional requirement meant that insurers who had to pay annuities were exposed to movements in real wages, prompting them to leave the market. Since the state-owned insurance company was left as the only active player in the market, the government intervened to issue a long-maturity bond tied to nominal wages (Saráchaga, 2019[108]).

[11] Communication campaigns aimed at explaining the details of reforms and different stakeholders' roles are discussed in Section 1.2.

[12] https://www.eurofound.europa.eu/publications/article/2003/introduction-of-labour-market-pensions-strengthens-bargaining-system

[13] The social security institute (IMSS) was responsible for the collection of the contributions, auditing and enforcement powers, and ensuring that employers and workers comply with obligations (Sales-Sarrapy and Solis-Soberon, 1998[111]).

[14] The government outsourced the IT development to an external agency, with less than a year until the first fund selection would take place. The Swedish authorities deemed it a costly but necessary solution to build the system under significant time constraints. Still, the system was not ready in time (Riksrevisionen, 2004[48]).

[15] The DOL regulates and supervises the occupational pension system, with a role in providing guidance to fiduciaries as well as enforcing the legislation. The IRS administers the Internal Revenue Code and determines the tax-qualified status of plans. It has jurisdiction over eligibility, vesting, and funding requirements under ERISA. The PBGC primarily focuses on the DB plan funding and insurance requirements of ERISA.

[16] https://www.dol.gov/agencies/ebsa/about-ebsa/our-activities/enforcement/oe-manual/relationship-with-irs

[17] See also Core Principle 6 (OECD, 2016[1]).

[18] https://www.thepensionsregulator.gov.uk/en/trustees/managing-db-benefits/governance-and-administration/record-keeping/what-records-to-keep

[19] This is in line with Core Principle 5.20, which states that: *Members' pension plan and personal information should be protected through appropriate control and protection mechanisms. These mechanisms should define the purposes for which the data may be collected, processed, held, used and disclosed (especially to third parties)* (OECD, 2016[1]).

[20] For example, in Australia, the MyGov platform allows individuals to view multiple accounts and consolidate them through a simple online process: https://moneysmart.gov.au/how-super-works/consolidating-super-funds

[21] Previous OECD research has shown that data constraints are the primary reason why many policy makers do not conduct regular retirement income adequacy assessments (OECD, 2020[116]).

[22] A recent example is the heat maps which the Australian superannuation supervisor (APRA) released to compare different MySuper products with a view to lifting industry practices.

[23] The transition cost of introducing a competing parallel system may be similar to the transition cost of a substitutive reform if most workers prefer to switch to the asset-backed system.

[24] There is an argument in the academic literature on the matter that, over time, the costs could be compensated for by lower public spending on pensions, and the benefits of deeper capital markets. Should a reform lead to wholesale productivity gains, such that society as a whole benefits from the reform, there can be a situation where the gains of some do not come at the cost of losses for others (Arrau, 1990[112]).

[25] Such recognition bonds were valued by calculating how much the old system was worth to all individuals alive. Namely, the value was calculated as the capital needed to enable a person to obtain a lifetime stream of income equivalent to 80% of their taxable income from 1978-80, adjusted for contribution years. Each recognition bond was readjusted by CPI every year and accrued 4% real interest ever year.

[26] https://resources.nao.org.uk/pensions_landscape/the-nest-loan.html

[27] https://www.pensionwise.gov.uk/en/financial-advice

[28] The Key Governance Requirements are: 1. Trustee boards must possess or have access to the knowledge and competencies necessary to properly run the scheme. 2. Trustee boards must assess the extent to which charges/transaction costs provide good value for members. 3. Core scheme financial transactions must be processed promptly and accurately. 4.Trustees of master trusts must meet independence requirements. 5.Trustee boards must ensure the default investment strategy is suitably designed for their members.

[29] Employment Pension Plans Act (Alberta) s 41(1), Pension Benefits Standards Act (British Columbia) s41(1).

[30] http://data.europa.eu/eli/dir/2016/2341/oj

[31] See: https://prod.apra.shared.skpr.live/superannuation-how-a-skills-matrix-can-help-transform-board-capability

[32] See, for example, the independent review of the New York State Common Retirement Fund: https://www.osc.state.ny.us/files/common-retirement-fund/resources/pdf/nyscrf-fiduciary-and-conflict-of-interest-review-2019.pdf

[33] Social Welfare & Pensions Act, 2008.

[34] https://www.pensionsauthority.ie/en/trustees_registered_administrators/trustee_training/

[35] https://www.ipe.com/news/lay-trustee-role-increasingly-difficult-to-sustain-industry-says/10052583.article

[36] https://trusteetoolkit.thepensionsregulator.gov.uk/; https://trusteetraining.pensionsauthority.ie/about/

[37] See, for example, the Pension Management Institute's accreditation programme: https://www.pensions-pmi.org.uk/knowledge/pmi-news/pmi-launches-accreditation-programme-for-professional-trustees/

[38] For example, typical reporting requirements include reporting on information on the structure of the governing board, decision-making procedures, risk management procedures, valuation methods, outsourced functions, etc. These functions are discussed in the IOPS Guidelines for the Supervisory Assessment of Pension Funds (IOPS, 2008[113]).

[39] http://data.europa.eu/eli/dir/2016/2341/oj

[40] Generally, consolidation can either come in the form of mergers or other integrated structures. Mergers or value transfers involve a fund being absorbed into a larger fund, with either the initial fund ending its operations or becoming a sub-fund of the larger entity. With integrated structures, schemes can share certain functions such as communications, payroll, and other administrative tasks without pooling assets. However, it is more common for consolidation to involve a collective fund, such as industry funds and master trusts, under which independent entities pool retirement savings which are not from the same company or holding group of companies (Hu et al., 2007[122]). Each scheme has its own ring-fenced assets and liabilities, and existing scheme rules remain unchanged. The benefit of such schemes is that they can pool governance, legal, actuarial, administration and investment functions, saving time and money and making large-scale direct investing more feasible.

[41] Previous value for members assessments required trustees to take into account costs and charges, investment returns and various elements of governance and administration such as quality of communication with members, effectiveness of managing conflicts of interest etc. (Department for Work & Pensions, 2020[77]). The new requirements broaden the requirements to include merger considerations (https://www.gov.uk/government/consultations/improving-outcomes-for-members-of-defined-contribution-pension-schemes/annex-e-statutory-guidance-value-for-money-and-consolidation)

[42] Notwithstanding, the Pensions Regulator has the power to issue an order to wind up the scheme, to remove trustees in certain circumstances, or to appoint new trustees to properly manage the scheme's assets. However, it would be unlikely to issue such orders, except in exceptional circumstances.

[43] https://www.thepensionsregulator.gov.uk/en/trustees/managing-dc-benefits/closing-your-dc-scheme; A number of consolidation solutions are available in the United Kingdom, such as buy-outs, master trusts, and commercial consolidators (AON, 2019[114]). Commercial consolidators have recently emerged as a solution to transfer risk from a DB scheme to a standalone entity, a superfund. Superfunds replace the employer's covenant with capital from investors.

[44] Pensions_regulator's_annual_report_2020_statement (pensionsauthority.ie)

[45] https://www.willistowerswatson.com/en-GB/Insights/2017/08/Pension-scheme-consolidation-lessons-from-overseas

[46] This recommendation has not yet been implemented in Australia.

[47] See, for example, guidance from the Pensions Regulator in the United Kingdom: https://www.thepensionsregulator.gov.uk/en/document-library/regulatory-guidance/conflicts-of-interest

[48] Independent governing board members can also bring specialised governance expertise to a board. There is also evidence that their presence can improve fund performance, although during crisis times this can have the opposite effect (Jackowicz and Kowalewski, 2012[82]).

[49] https://prod.apra.shared.skpr.live/news-and-publications/apra-deputy-chair-helen-rowell-speech-to-aist-online-chairs-forum

[50] https://www.pensioenfederatie.nl/website/pension-fund-governance

[51] A combination of risk-based and quantitative approaches may also be applied.

[52] See, for example, OECD Reviews of Pension Systems: the Czech Republic (OECD, 2020[121]).

[53] https://www.legislation.gov.au/Details/F2021L01077

[54] A quantitative analysis of market features typically refers to concentration measures like the number of providers, concentration ratios, and the Herfindahl-Hirschman Index.

[55] For example, there is a concern in Denmark that commercial pension companies, which are incorporated life insurers, compete to attract consumers by setting relatively low or even loss-making insurance premiums and administration costs, while setting higher prices for asset management. The Danish Competition and Consumer Authority has flagged this bundling practice as a key area of concern for competition (Konkurrence- og Forbrugerstyrelsen, 2019[72]).

[56] For example, in Australia, people often get default insurance products with their retirement savings plans. People who have duplicate pension plans are likely to also have duplicate insurance policies. This leads to over-insurance, while duplicate insurance premiums erode pension assets over multiple accounts.

[57] Periodic competition reviews that focus on the market for pension provision are also important. There is a case for reviews to focus on financial system integration in particular, including ex post reviews of merger decisions. Doing so matters because certain market structures (such as vertical integration) can either create a benefit or a detriment to consumers, so governments need to carefully assess any regulation of integration with respect to potential consumer harm (Productivity Commission, 2018[62]).

[58] https://www.europeanpensions.net/ep/Absolutely-crucial-for-Danish-pension-industry-to-bundle-products.php

[59] https://www.legislation.gov.au/Details/C2019A00016

[60] In some jurisdictions, the choice of pension provider, including a decision to switch provider, lies with employers or unions (e.g. occupational plans). A key mechanism to ensure that members ultimately reap the benefits of competition, when individual choice does not exist, is having effective governance mechanisms. This means having sound evaluation mechanisms with regular checks on the performance of pension providers and a requirement to shop around at specific intervals.

[61] https://www.legislation.gov.au/Details/C2019A00016

[62] https://www.pensionsmyndigheten.se/other-languages/english-engelska/english-engelska/changing-funds-within-premium-pension

[63] In Australia, for example, the supervisor publishes comparative assessments of the performance of every default retirement savings product from different providers, across different criteria. See https://www.apra.gov.au/mysuper-product-heatmap.

[64] https://www.moneyhelper.org.uk/en/pensions-and-retirement/pension-wise

[65] The nexus between consumer protection and competition is recognised in the OECD Recommendation on High-Level Principles on Financial Consumer Protection, which includes a specific principle on "Competition" (OECD, 2012[117]).

[66] In some countries, social and labour laws can offer strong consumer protection as well.

[67] Research in this area has also informed the IOPS Good Practices on the Role of Pension Supervisory Authorities in Consumer Protection Related to Private Pension Systems (IOPS, 2018[118]).

[68] See https://pensionsawarenessweek.ie/ and https://pensionawarenessday.com.

[69] On 26 July 2021, the DOL released temporary implementing FAQs, clarifying the upcoming deadlines for disclosure of lifetime income illustrations.

[70] Myths and truths about the Chilean pension system - SP. Superintendency of Pensions - Government of Chile (spensiones.cl)

[71] apra-asic-letter-on-COVID-19-1-april-2020-1.pdf

[72] [ARCHIVED CONTENT] DC investment: COVID-19 guidance for trustees | The Pensions Regulator (nationalarchives.gov.uk)

2 How best to involve employers in the provision of asset-backed pension arrangements

This chapter provides policy guidance on how best to involve employers in the provision of asset-backed pension arrangements. It analyses current employer involvement as well as employers' motivations to be involved in the provision of asset-backed pension arrangements. The policy guidance aims at assisting countries to make the best use of the advantages of involving employers, while addressing to the extent possible the potential challenges associated with employer involvement.

In most countries, employers play a role in the provision of asset-backed pension arrangements. Employers are well placed to assist their employees to save for retirement. They can link participation in an occupational pension plan to the employment contract and facilitate savings through payroll deductions.

The role of employers can take different forms. Some countries rely on employers, alone or together with social partners, to sponsor, design, contribute and administer asset-backed pension plans. In other countries, the role of employers is rather limited, with plan design handled by legislation, contributions by individuals, and administration by third-party financial institutions. Some countries mandate employers to take an active role in the provision of asset-backed pension plans for their workforce, while others let employers decide whether to offer a plan and to contribute.

Additionally, developments in the labour market may undermine the role of employers. Workers are more likely than in the past to change employers multiple times during their career and to take self-employment jobs. This translates into the necessity to make it easy for workers to save for retirement with any employer and independently of their employment status.

This chapter provides policy guidance on how best to involve employers in the provision of asset-backed pension arrangements. It presents options to make the best use of the advantages of involving employers, while addressing to the extent possible the potential challenges associated with employer involvement, while also considering the motivations for employers to get involved in the provision of asset-backed pension arrangements.

Employer involvement in the provision of asset-backed pension arrangements is already important in many OECD countries. One of the key roles they currently play is to pay a significant share of the total contributions to asset-backed pension plans. While employer-sponsored asset-backed pension plans bring many advantages and form part of the strategy of some employers to attract and retain the best employees, involving employers in the provision of asset-backed pension arrangements is not without challenges, especially for small employers. Policy guidance to optimise employer involvement include taking into account the structure of the labour market and the labour force mobility; ensuring good conditions in regulations and financial markets; reducing barriers preventing employers from establishing pension plans; providing flexibility for employers to tailor the design of the plan within a regulatory framework that ensures non-discriminatory treatment across workers; promoting the use of behavioural strategies to foster participation and savings; facilitating the delivery of financial education in the workplace; and providing the necessary framework for good governance.

The structure of this chapter is as follows. Section 2.1 analyses current employer involvement in the provision of asset-backed pension arrangements in OECD countries. Section 2.2 presents the motivations for employers to be involved in the provision of asset-backed pension arrangements. Section 2.3 discusses the advantages and potential challenges associated with employer involvement. Section 2.4 provides policy guidance to optimise employer involvement in the provision of asset-backed pension arrangements, based on OECD countries' experiences, and Section 2.5 concludes.

2.1. Current employer involvement in the provision of asset-backed pension arrangements

This section presents the extent to which employers in OECD countries are currently involved in the provision of asset-backed pension arrangements. It first discusses the various degrees of employer involvement depending on the type of plan. It then looks at statistics on participation, contributions and assets to assess quantitatively employer involvement.

While the range of roles that employers can play in the provision of asset-backed pension arrangements is large, the extent to which employers have to fulfil each of these roles varies across different types of

plans. Table 2.1 describes the degree of employer involvement for statutory personal plans, workplace personal plans and occupational plans.

Table 2.1. Role of employers according to the type of asset-backed pension plan

	Statutory personal plans	Workplace personal plans	Occupational plans
Establish the plan			X
Design the plan			X
Establish, select or join a pension provider (1)		X	X
Assess and enrol eligible employees			X
Deduct and remit employee contributions	X	X	X
Pay employer contributions	X	X	X
Select investment options			X (DC)
Establish the investment policy			X (DB)
Bear or share risks			X (DB)
Keep records			X
Transmit employee information	X	X	X
Provide information and financial education		X	X

Note: 1. Depending on the country, the term referring to "pension providers" may differ. For example, in Chile, they are called pension fund administrators. In the United Kingdom, they are called pension schemes. Their role may vary according to the country. In this document, a pension provider is an independent entity with legal capacity that has ultimate legal responsibility for a pension fund and may have a broader range of activities. It does not refer to plan members, the plan itself, or the employer.

Employer involvement is minimal in statutory personal pension systems. In these systems, the law sets up the design of the plan and the conditions of enrolment (e.g. mandatory in Chile, voluntary in the Slovak Republic, automatic with an opt-out option in Lithuania). Workers need to select a pension provider, join the plan established by the pension provider according to the law and choose their investment strategy. The role of the employer is limited to deducting and remitting employee contributions to the pension provider and transmitting employee information to the relevant stakeholders.[1] In some countries, they also have to pay employer contributions.

Employers have additional responsibilities when they provide access to a workplace personal plan to their employees. In particular, they have to select a pension provider established by a financial institution and provide information about the plan features to employees. In agreement with the pension provider, they may also select some design features of the plan (e.g. eligibility conditions, default contribution rate). Paying employer contributions is usually voluntary.

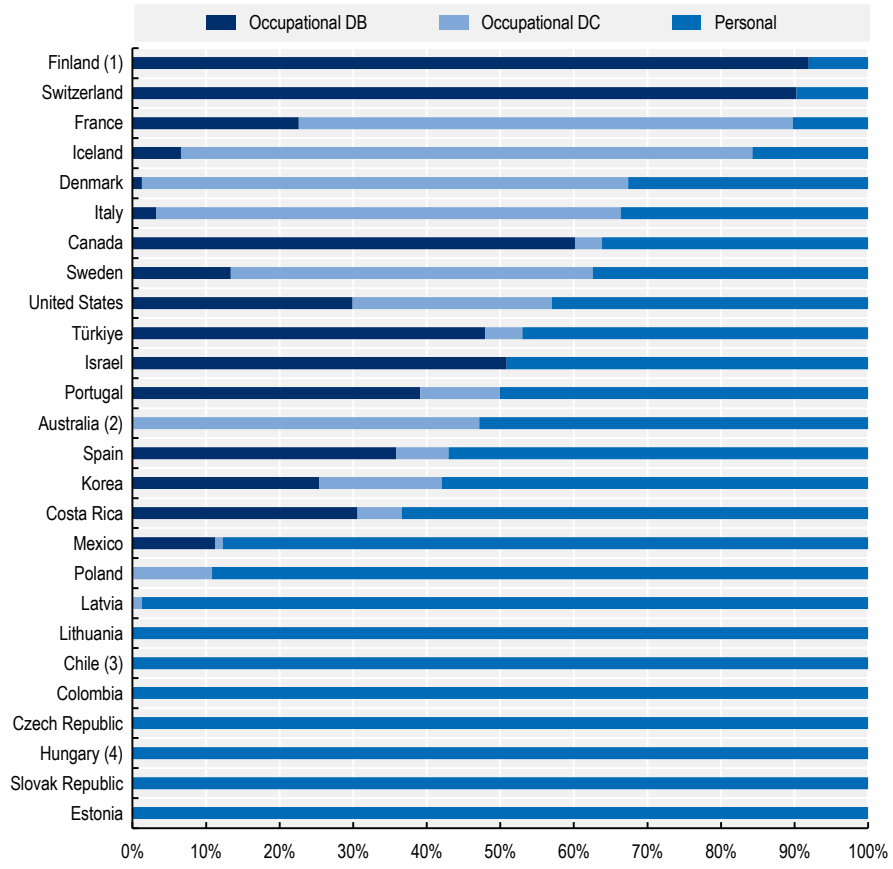
Employer involvement is the largest in occupational pension plans, in particular in defined benefit (DB) plans. When employers voluntarily choose to offer a plan to their employees, they have to establish and design that plan. When a law or a collective agreement requires employers to set up the plan, it may also define some of the design features. To run an occupational plan, employers have to establish the financial vehicle themselves, select a pension provider established by a financial institution, or join a pension provider selected or established by social partners. Employers also need to assess their employees' eligibility to join the plan and enrol them mandatorily, automatically or at their request. In the case of automatic enrolment, employers also need to act on opt-out requests. In defined contribution (DC) plans, members bear the investment risk, but employers may select the investment options that members can choose from, including the default option. By contrast, the employer bears fully or partially the investment and longevity risks in DB plans. This makes them responsible for the investment policy. Employers may also provide financial education to their employees.

Employers can share all these responsibilities related to the provision of an occupational pension plan when that plan is jointly established with other employers or with trade union associations. Indeed, most countries allow multi-employer pension plans. Participation in such plans may be restricted to employers who belong to the same industry or sector, or may be open to any employer. All participating employers share the responsibilities and costs related to the plan. In the case of master trusts, some responsibilities may even be transferred to the pension provider, such as establishing the investment policy or communicating with employees. Employers or groups thereof (e.g. business associations) may also establish occupational plans jointly with trade union associations as a result of collective agreements. Collective agreements establishing occupational plans may apply at the company level, such as in France, Japan, Korea, Latvia, Portugal and Slovenia, or at the level of the industry or sector, such as in Denmark, Finland, Iceland, Italy, the Netherlands and Sweden. In that case, some or all of the responsibilities related to the plan may be shared with, or transferred to the social partners. For example, social partners are fully responsible for establishing and implementing occupational pension plans in Denmark, Finland, Iceland, the Netherlands and Sweden.

A large proportion of OECD countries rely on occupational pension plans, where employer involvement is the highest. Figure 2.1 shows the split of total pension assets by type of plan in selected OECD countries. Assets in occupational pension plans represented more than 50% of total assets in 11 OECD countries in 2020. By contrast, in seven OECD countries, all pension assets were in personal pension plans. Among the countries with occupational pension plans, DB assets exceeded DC assets in Canada, Costa Rica, Finland, Israel, Korea, Portugal, Spain, Switzerland, Türkiye and the United States. This shows that employer involvement in the provision of asset-backed pension plans and the long-term commitment from employers are important in many countries.

Figure 2.1. Split of pension assets by type of plan in selected OECD countries, 2020

As a percentage of total assets

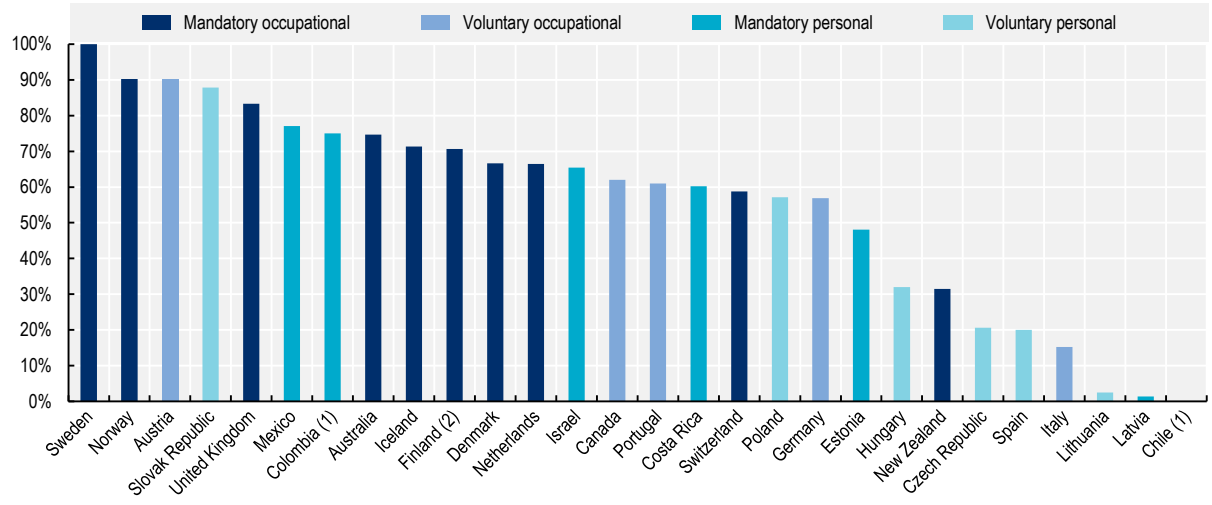


Notes: 1. Data do not include the assets in the only voluntary occupational DC pension fund operating in Finland. Its market share is negligible. 2. Corporate, industry and public sector superannuation funds are included as DC occupational plans, even though a minority of plans are DB. Retail and small funds are included as personal plans. 3. Data for Collective Voluntary Pension Savings managed by AFPs are included in personal plans, although these plans are occupational. 4. Data do not include the assets in the only institution for occupational retirement provision operating in Hungary. Its market share is negligible.
Source: OECD Global Pension Statistics.

Employers significantly contribute to asset-backed pension plans on behalf of their employees in most OECD countries. Figure 2.2 shows that, except in Chile, part of the total contributions paid in 2020 in asset-backed pension arrangements came from employers. In most countries, including those relying on personal pension systems, the share of employer contributions exceeded 50% of total contributions. It even exceeded 70% in ten OECD countries, seven of which having occupational pension systems. Employer contributions tend to represent a bigger share of the total in countries with mandatory occupational pension systems. By contrast, countries where employer contributions represent less than 50% of the total tend to rely more on personal pension schemes.

Figure 2.2. Employer contributions to asset-backed pension plans in selected OECD countries, 2020

As a percentage of total contributions

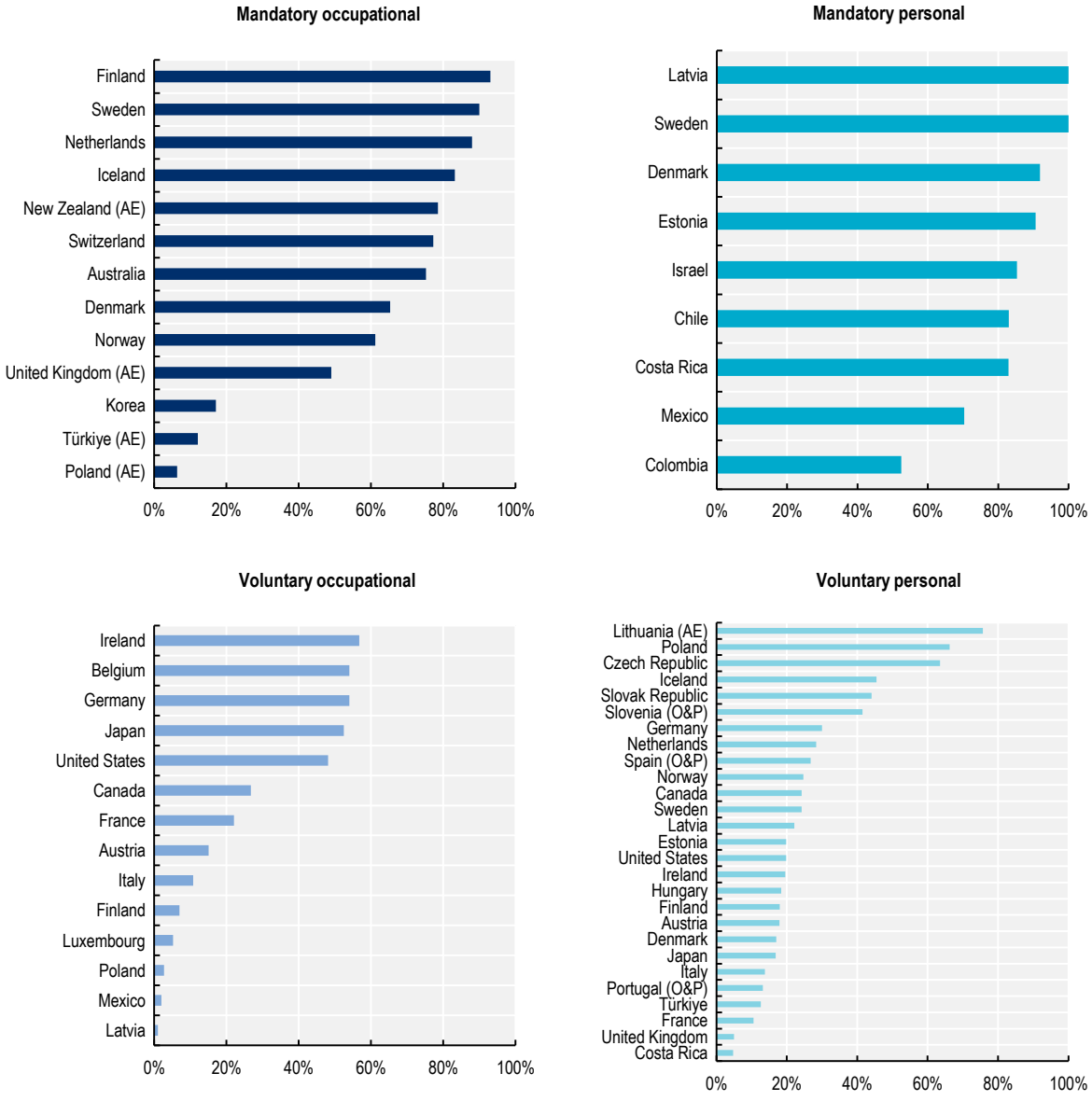


Notes: Countries are classified according to the dominant type of asset-backed pension plan. When both occupational and personal plans have a similar importance, the country is classified as occupational. 1. Data refer to the mandatory personal pension scheme only. Although employers do not contribute to mandatory pension accounts, they do pay for the Disability and Survivor Insurance. 2. Data refer to the mandatory occupational pension scheme only.
Source: OECD Global Pension Statistics.

However, employer involvement in the provision of asset-backed pension arrangements does not necessarily translate into high participation rates. Participation is the largest in mandatory pension systems, whether the mandate to participate is on employers or on workers. In mandatory personal systems, the law requires workers to participate in a pension plan. By contrast, in mandatory occupational systems, the law requires employers to establish a plan and enrol all their eligible employees into it. In addition, in most countries with a national automatic enrolment policy, employers also have a mandate to enrol all their eligible employees into a plan. Participation remains voluntary for employees, as they can decide to opt out of the plan. As shown in the top panels of Figure 2.3, participation rates in countries with some form of compulsion are usually high, reaching 80% of the working-age population or more in ten OECD countries. However, participation is not universal in several countries, as the mandate does not cover all workers. In particular, occupational pension systems rarely cover self-employed workers and may not cover all sectors. Moreover, opt outs reduce participation rates in the case of automatic enrolment.

Figure 2.3. Participation rates in asset-backed pension plans according to the type of plan, selected OECD countries, 2020 or latest year available

As a percentage of the working-age population



Notes: Participation rates are provided with respect to the total working-age population (i.e. individuals aged 15 to 64), except for Germany (employees aged 25 to 64 subject to social insurance contributions), Iceland (Icelandic citizens and foreign workers in Iceland aged 16 to 64) and Ireland (workers aged 20 to 69). For Portugal, Slovenia and Spain, data for voluntary personal plans actually refer to occupational and personal plans (O&P). Plans with a national automatic enrolment (AE) policy are classified here as mandatory occupational when the employer has the obligation to enrol eligible employees into a pension plan.
Source: OECD Global Pension Statistics.

Participation rates are much lower in voluntary systems. In particular, participation in voluntary occupational systems usually requires two steps, i) that the employer establishes a plan and ii) that the employee joins that plan.[2] The bottom left panel of Figure 2.3 shows that participation rates in voluntary occupational systems are around 50-55% of the working-age population in Ireland, Belgium, Germany,

Japan and the United States, but they fall to 25% and below in other countries. Similarly, participation rates in voluntary personal plans tend to be below 30% of the working-age population in most countries.

2.2. Motivations for employers to be involved in the provision of asset-backed pension arrangements

This section discusses the motivations that employers may have to provide access to, and sponsor asset-backed pension plans for their employees. This is mostly relevant in the context of voluntary pension schemes, where employers can decide on their degree of involvement. However, even in mandatory pension schemes, employers may have some discretion to go beyond the legal requirements. It is also interesting to understand their motivations in this context.

Employers would like to recruit and keep the best employees to ensure that the business works well and achieves its objectives. The simplest way to compensate employees is to pay a direct salary for the work performed. However, other forms of remuneration may be useful to attract and retain good employees. These include benefit packages such as health care coverage and pension plans.

There are various reasons why employees may value pensions as part of the remuneration package. First, they may value the favourable tax treatment that retirement savings receive in most OECD countries, in particular when contributions can be deducted from their taxable income (OECD, 2018[1]). Employees may also value the benefits of pooling investments and the economies of scale achieved with occupational pension plans, as compared to personal pension plans (Brady and Bogdan, 2011[2]). Employees with a DB plan may also appreciate the lower uncertainty associated with the level of their future retirement income.

Evidence confirms that employees value the presence of occupational pension plans when making job decisions. For example, Oakley and Kenneally (2019[3]) show that, when thinking about what drives their job decisions, public-sector employees in the United States place more importance on retirement benefits (which, in the public sector, are usually through DB plans) than on salary. Fifty-nine percent of these workers consider retirement benefits as extremely important, against 50% for salary. Similarly, in the United Kingdom, employees of a financial services firm considered the availability of an occupational plan as an important factor influencing or likely to influence their job choice, ranking this factor in the fifth position out of 20 items (Loretto, White and Duncan, 2000[4]).

Offering occupational pensions to employees may bring various benefits to employers (McCarthy, 2006[5]). Pensions may reduce employee turnover by encouraging workers to stay longer with the employer, thereby reducing hiring and training costs. Employers may also use pensions to attract employees with specific characteristics that match the needs of the company. For example, employees who intend to stay at their job for a long time may be more likely to apply for a job with a DB plan than workers who intend to change jobs quickly. A survey in the United States finds that 74% of employers believe that offering an asset-backed pension plan is important for attracting and retaining employees. It is even above 90% among medium (100 to 499 employees) and large (500+ employees) employers (Collinson, Rowey and Cho, 2021[6]).

Empirical evidence confirms that firms with an occupational pension plan experience a longer average employee tenure than those without. Examples of studies finding a link between pension plans and retention rate or job tenure are those by Mitchell (1983[7]); Ippolito (1991[8]); Allen, Clark and McDermed (1993[9]); and Hernæs et al. (2006[10]).[3] In line with these results, a recent study in Canada shows that firms without a pension plan have a rate of voluntary job separation 1.5 percentage points higher than firms offering a traditional DB plan (Fang and Messacar, 2019[11]).[4]

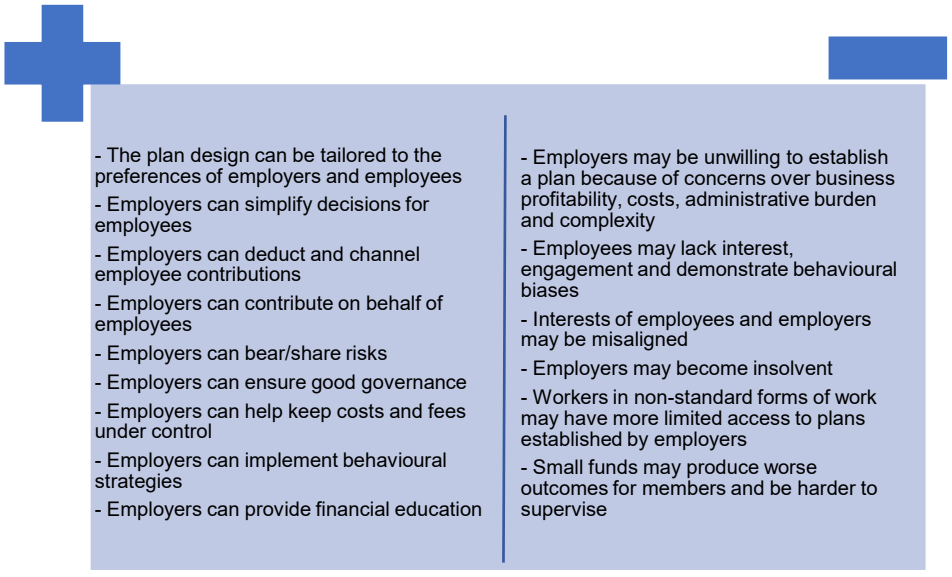
Finally, in the context of mandatory pension schemes, higher employer contributions may increase job satisfaction and reduce job turnover intentions. For instance, in the Netherlands, contributions to DB pension funds and the share of these contributions paid by the employer vary across funds. Augustus,

Costello and Ponds (2021[12]) show that individuals in funds where the employer contribution is higher are more satisfied with their pension conditions, less willing to search for a new job and more willing to stay in their job. The authors suggest that employees may value a higher employer contribution positively, as it signals the employer's commitment to pension funding.

2.3. Advantages and challenges associated with involving employers in the provision of asset-backed pension arrangements

There are advantages and challenges associated with the involvement of employers in the provision of asset-backed pension arrangements. Some of the advantages may be particularly relevant either for employers, employees or the pension system as a whole. However, the involvement of employers also poses challenges. Figure 2.4 summarises the main advantages and challenges, while the rest of the section goes into more details.

Figure 2.4. Advantages and challenges associated with involving employers in the provision of asset-backed pension arrangements



2.3.1. Advantages

When employers set up an occupational pension plan for their employees, they can usually design it so that it fits the preferences of both parties. Regulation may provide flexibility for the design of the plan with respect to the conditions to join the plan, the type of plan (e.g. DB or DC), the level of contributions, the conditions for early withdrawals, the age of retirement and the coverage of additional risks (e.g. disability). Although potentially increasing complexity, having multiple options allows employers to tailor some of the plan features to the needs of the company and of the employees. The design of the plan may also be the result of a social dialogue between the employer and the representatives of the employees, or at a higher level between business associations and unions for an entire sector or industry. These collective agreements allow, for example, having a pension plan for nurses different from the one for banking employees, each of these plans being tailored to the needs of their members (e.g. in terms of contributions). They also allow a level playing field within the sector or industry.

Employers can also simplify some of the decisions related to saving for retirement that employees have to make. For example, employers can make some of the decisions on behalf of employees, such as the selection of the financial services providers who administer and manage the pension plan. Employers may also select the menu of investment options that members can choose from in their occupational DC plan, such as in Canada and the United States. In that respect, a reduced set of options is likely to simplify member selection, given that individuals can be prone to choice overload (OECD, 2018[13]). Keim and Mitchell (2017[14]) show that, when the employer reduces and streamlines fund options, participants adjust their portfolio, ending up with fewer funds, less frequent fund switches, and lower expense ratios.

Employers are in an ideal position to deduct and channel employee contributions to the pension provider through payroll deductions. Payroll deductions are already in place in all countries for different social insurance schemes (e.g. health, unemployment, pensions, and disability). Employers can use the same mechanism for retirement savings. Moreover, payroll deductions reduce the feeling of loss aversion, since contributions are taken before employees receive their take-home pay.

Employers may also contribute on behalf of their employees. The main objective of employer contributions in general is to provide savings, helping employees to accumulate enough resources to finance retirement. While, eventually, employees bear most of the cost of employer-provided benefits (through reduced wages),[5] employer contributions into an asset-backed pension plan complement the money that employees set aside to finance their future retirement income. They are akin to forced savings, justified by the fact that individuals tend to procrastinate and not to save enough for retirement. Employer matching contributions can fulfil an additional objective, which is to induce employees to save for retirement. This is because only individuals contributing themselves to their asset-backed pension plan receive the employer matching contribution.

Additionally, employers can bear some of the risks related to saving for retirement. In DB plans, employers bear alone all investment and longevity risks, as well as the inflation risk when benefits are indexed to inflation. By contrast, in DC plans, all the risks are shifted to individuals. In-between these two extremes, some arrangements allow employees and employers to share risks (OECD, 2020[15]). For example, employers may only guarantee a minimum level of assets accumulated at retirement, thereby sharing the investment risk during the accumulation phase. This minimum level can be based on a minimum return on investment (e.g. Belgium), a return linked to a specific index (e.g. cash balance plans), or a formula based on salary (e.g. DB underpin plans). Other arrangements additionally allow employees and employers to share longevity risk. These plans define expected benefits in advance, but the level of these benefits is conditional on funding levels, although a floor is guaranteed until the death of the retired member. This is for example the case with DB plans providing conditional indexation (e.g. the Netherlands).

Employers can be involved in the governance of the pension plan, thereby ensuring that it provides good value to members. When retirement savings are an important component of the total compensation, employers have an incentive to ensure the soundness of the plan for their employees. Employers may be involved in the governance by being fiduciaries of the plan, such as in the United States. Fiduciary responsibilities include for instance the prudent selection of investment options for 401(k) plans, taking into account the needs of different members. Employers may also be able to nominate representatives in the governing body of the pension fund.[6] The governing body is then responsible for the operation and oversight of the pension fund, and is the ultimate decision-maker with the overarching goal of acting in the best interest of plan members and beneficiaries (OECD, 2016[16]). Governance can also be joint with employees. For example, Iceland, Japan and the Netherlands require equal representation of employee and employer representatives in the governing body (Stewart and Yermo, 2008[17]). Employee or member representation can ensure a better alignment of the interest of the governing body with those of the fund's beneficiaries.

Employers can also help keep costs under control. Employers have an interest to make sure that the plans they offer to their employees are cost-effective, as otherwise, both employers and employees would prefer

other kinds of remuneration. Additionally, group purchases give members more negotiating power with financial services providers, both in terms of costs and of availability of suitable options, while multi-employer plans can help achieve economies of scale. Occupational plans may also reduce transaction costs, allowing employees easier access to capital markets (McCarthy, 2006[5]). Moreover, employers may bear directly some of the costs. For example, in the United Kingdom, employers can agree to pay a fee to pension providers to reduce the charges paid by their employees (Department for Work and Pensions, 2021[18]). Finally, employers may have a fiduciary duty to keep fees at reasonable levels. This is the case in the United States for instance. Hence, in several countries, members enjoy lower fees in occupational pension plans than in personal pension plans. For example, in Spain, the management and custodian fees charged to members in 2020 reached 0.1% of assets under management for occupational DC plans, as opposed to 1.0% of assets under management for personal plans.[7]

Employers have been at the forefront of the implementation of innovative behavioural strategies in several countries. Behavioural strategies are policies that take into account the behavioural biases of individuals when they make decisions, in order to nudge them in the direction most beneficial for their retirement outcomes. Policies that improve the design of asset-backed pension plans while adjusting for the observed patterns of behaviours include automatic features (e.g. automatic enrolment and automatic escalation of contributions), default options (e.g. for the contribution rate or the investment strategy), simple information and choice, financial incentives and financial education (OECD, 2018[13]). A number of these policies rely on the involvement of employers, in particular automatic enrolment, matching contributions, automatic escalation of contributions and default options.

Finally, employers can help their employees improve their financial literacy about pension issues and personal finance more generally. Many employers actively provide financial education in the workplace (OECD, 2022[19]). Several studies provide evidence of the effectiveness of workplace financial education on enrolment into an asset-backed pension plan and/or on contributions to such a plan (Atkinson et al., 2015[20]). Beyond the benefits of improving financial literacy for the sake of employees' financial well-being, there is also a business case for employers to provide financial education in the workplace. Employers may indeed benefit from increased employee satisfaction, a better reputation as an employer of choice, lower employee financial stress, lower absenteeism, and in turn greater productivity (Vitt, 2014[21]; OECD, 2022[19]).

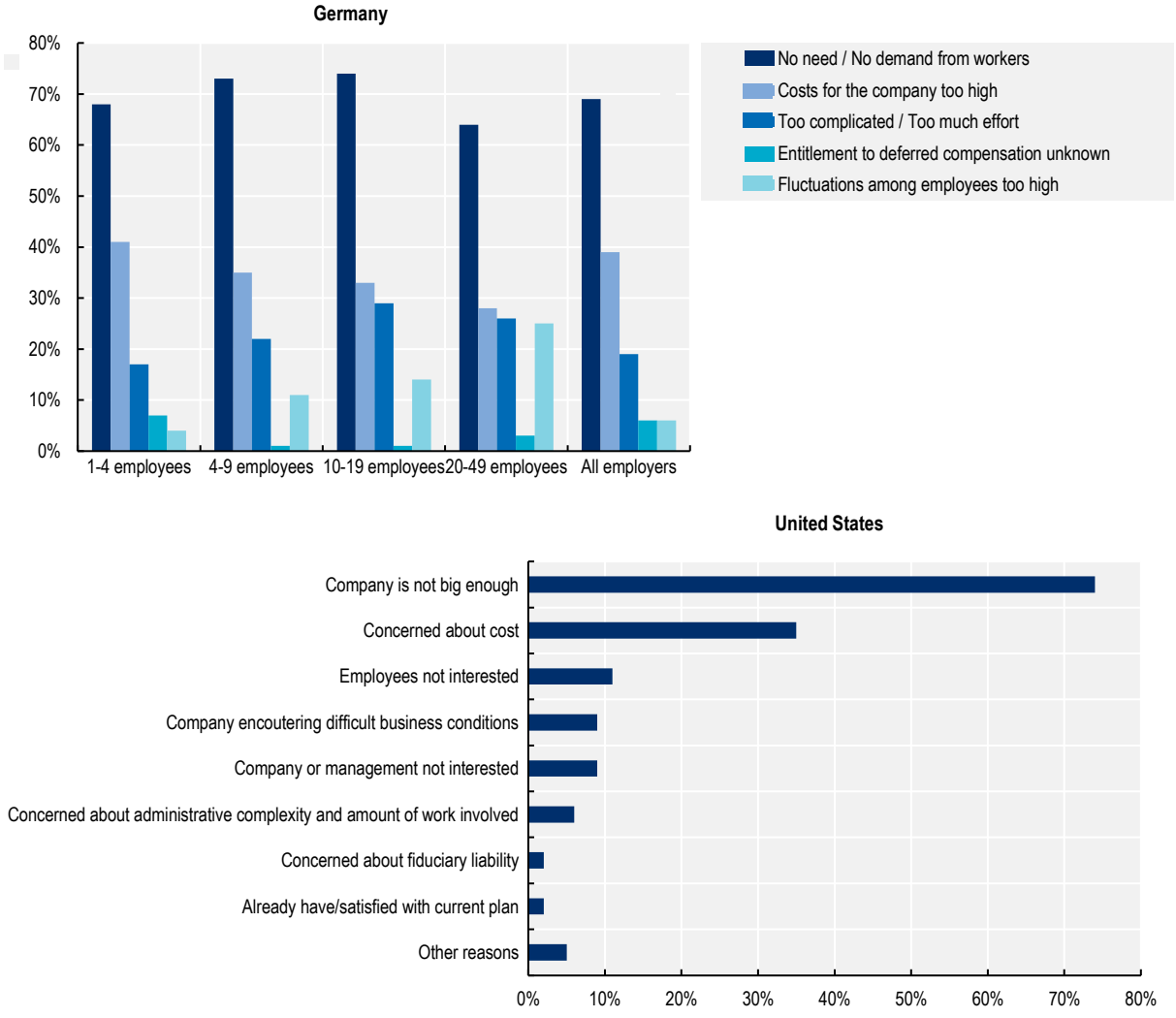
2.3.2. Challenges

The main challenge when employers are involved in the provision of asset-backed pension arrangements is to achieve high participation rates. Indeed, when the establishment of an occupational pension plan by employers is voluntary, employers may face several barriers preventing them from establishing a plan. In addition, even when the employer establishes a plan, employees may be unwilling to participate. Moreover, relying on employers for the provision of asset-backed pension arrangements means that the self-employed and other non-standard workers may be disadvantaged. Additionally, some of the advantages discussed previously only materialise if employers have a certain size.

There are several reasons why employers may be unwilling to establish a pension plan for their employees in voluntary occupational systems. Figure 2.5 illustrates these reasons for Germany and the United States. First, concerns over business profitability may be an impediment for some employers to establish a plan for their employees. Employers may not want to commit to establish a pension plan for their employees if they are not sure how business profitability will evolve. This could be particularly the case for small employers, those just starting a business, or those with low business income.

Figure 2.5. Reasons for not offering an asset-backed pension plan in Germany and the United States

Percentage of employers



Source: Kantar (2021[22]) for Germany; Collinson, Rowey and Cho (2021[6]) for the United States.

Second, costs and administrative burden may deter employers, in particular smaller ones, from establishing a pension plan. Employers may need to cover a wide range of costs during the lifetime of the plan, including set-up costs, employer contributions, administration costs, as well as compliance costs. Administration and compliance costs include the time spent on tasks such as keeping records for current and former employees, assessing employee eligibility, enrolling members, collecting information, channelling employee contributions to the pension provider, processing opt-in and opt-out requests, or communicating with plan members.

Third, complexity may discourage some employers, particularly smaller ones, from establishing an occupational pension plan. In particular, some employers may believe that administering an asset-backed pension plan may distract them from running their business. Some employers may lack the skills to make appropriate choices regarding plan administration and may be worried about the threat of litigation (fiduciary risk).

Some of the barriers to establish a pension plan are likely to affect small employers more. In particular, small employers may hesitate to commit to establish a pension plan for their employees, as their sources of revenue are usually less diversified and predictable than for large employers. Small employers may also lack the resources, knowledge and skills to develop, implement and administer a pension plan, as well as to oversee the different providers servicing the plan. The lack of in-house expertise may expose them to fiduciary errors and regulatory sanctions. Additionally, set-up and ongoing costs are proportionally higher for smaller employers, because they cannot spread the costs over a large base of employees and are more likely to rely on external providers to handle plan operation and administration.

As a result, provision of an occupational pension plan tends to decrease with employer size in voluntary systems. For example, in the United States, 53% of workers in firms with less than 50 employees have access to an occupational pension plan. This proportion increases to 73% for firms with 50 to 99 employees, 82% for firms with 100 to 499 employees and 92% for firms with 500+ employees (U.S. Bureau of Labor Statistics, 2021[23]).

Employers may also decide against establishing a pension plan because of a lack of interest from employees. Lack of interest for pension plans may have several causes. Young employees for example may feel that retirement is far away and prioritise savings for other motives, such as buying a first home. Employees close to retirement may feel it is too late for them to start saving for retirement. The size of the expected public pension may also drive workers' preferences for saving in complementary pension schemes. If workers expect, correctly or wrongly, high public pension benefits, they may not see the need to save additionally for retirement. Finally, employees with low earnings may prefer higher wages rather than an employer contribution into a pension plan and they may have difficulties to contribute themselves.[8]

Relying on employers to provide access to asset-backed pension arrangements also means that self-employed workers may be excluded. In most countries, the self-employed are not required to participate in an asset-backed pension plan, even when employers have the obligation to set up a plan and enrol all their eligible employees into it. Similarly, the self-employed tend to be excluded from the target population of automatic enrolment schemes. As a result, self-employed workers tend to participate less in asset-backed pension plans than employees do in pension systems organised mostly through occupational plans (OECD, 2019[24]).

Moreover, a lack of portability of pension rights and assets disadvantages temporary workers. In occupational pension systems, retirement savings do not necessarily follow workers automatically when they change employers. Because the design of occupational plans can be diverse depending on the needs and preferences of employers, the portability of pension rights and assets is not always straightforward (e.g. between DB and DC plans). In general, upon job changes, workers have the option of keeping their accrued rights and assets in the occupational plan of their former employer, or transferring them to their new employer's occupational plan (OECD, 2019[24]). However, the lack of consolidation of pension rights and assets implies that employees may cumulate multiple inactive accounts over their career. They may pay fixed fees on these inactive accounts and they may also lose track of them.

Meanwhile, employees may be unwilling to join a plan established by their employer. Indeed, behavioural biases such as present bias, inertia, procrastination and over-confidence may result in situations where employees never join a pension plan or delay enrolment for a long period, even when this would be beneficial for them (OECD, 2018[13]). Additionally, employees may not join a plan because their interests are not aligned with those of the employer and the plan design does not fit their needs. For example, employers may select service providers that charge low fees to employers but high fees to members. Employer contributions may be too low to attract employees. Employers may also want to restrict plan membership (e.g. based on earnings, working hours or type of contract) and impose vesting periods, thereby disadvantaging certain categories of workers, such as part-time and temporary employees (OECD, 2019[24]). Employers and employees may also have different risk appetites, in particular in DB schemes,

leading to different asset allocations depending on the balance between employee and employer representatives in the governing body of the scheme (Bauer et al., 2020[25]).

Employees may also fear to lose their accumulated pension rights or assets if the employer goes bankrupt and the plan winds up. This may be particularly the case for DB plans. Even when there is an insurance mechanism against the risk of insolvency, a cut may apply on the expected benefits depending on the financial situation of the fund when the employer becomes insolvent.

Lack of employee engagement may also lead to sub-optimal decisions. As employers play a key role in the design of occupational pension plans, some employees may just be sleepwalking into asset-backed pension arrangements and not engage with the product. Employers can make a number of decisions on behalf of employees, for example by selecting the pension provider, enrolling employees automatically and offering default options for the contribution rate and the investment strategy. This reduces choice overload and simplifies decision-making by employees (OECD, 2018[13]). As employees join the plan following the path of least resistance, however, they are less likely to make active decisions, even though the default options do not fully align with their needs and preferences (Madrian and Shea, 2001[26]; Choi et al., 2004[27]).

Finally, when small employers offer an occupational pension plan, the characteristics of the plan may lead to worse outcomes because small plans cannot benefit from economies of scale. Small funds may also be harder to supervise. In particular, members in small plans may face higher fees and charges than those in large plans (Rekenthaler, Spiegel and Szapiro, 2017[28]). Additionally, small employers may lack the resources to use innovative design features that help drive participation and savings. For example, in the United States, adoption of automatic enrolment increases with plan size, from 36% for plans with fewer than 500 members to 72% for plans with 5 000 members or more (Vanguard, 2021[29]). Occupational pension systems composed of a myriad of small funds may also represent a challenge for pension supervisors. When each small employer potentially establishes its own pension fund, the number of pension funds in the country may become problematic. One of the issues from a supervisory perspective is that it may not be feasible to undertake individual risk assessments of each pension fund.

2.4. How best to involve employers in the provision of asset-backed pension arrangements

This section provides policy guidance on how to optimise employer involvement in the provision of asset-backed pension arrangements, based on OECD countries' experiences. It presents options to make the best use of the advantages of involving employers and their motivations, while addressing to the extent possible the challenges associated with the involvement of employers.

2.4.1. Select the appropriate degree of employer involvement

The first issue when discussing employer involvement in the provision of asset-backed pension arrangements is to consider the degree of employer involvement and thus the type of plan given the role that employers may play. As shown in Table 2.1, the degree of employer involvement is minimal for statutory personal pension plans and the largest for occupational pension plans. Several factors may guide policy makers when deciding the type of plan to develop and the degree of employer involvement.

The appropriate degree of employer involvement in the provision of asset-backed pension arrangements may depend on the structure of the labour market. For example, in countries with a high level of labour informality, a large share of the workforce may have loose connections with employers. Relying on employers to establish occupational pension plans and enrol their employees into them may exclude, therefore, a large share of the population. Similarly, if self-employed workers represent a large share of the labour force, an occupational pension system may not be ideal to provide asset-backed pension

arrangements to the entire workforce, and a personal pension system may be more appropriate. By contrast, occupational pension plans are well adapted when most of the labour force is in a formal full-time employment relationship.

When relying on occupational pension plans for employees, separate personal pension schemes may fill the gap for the self-employed. Several countries offer dedicated personal pension plans for the self-employed, such as Belgium, France and Japan. Other countries allow the self-employed to use part of business profits or sale proceeds to save for retirement in dedicated pension products. This is the case for example in Australia, Denmark and the Netherlands (OECD, 2020[30]).

However, dedicated pension arrangements for different categories of workers may not facilitate saving for retirement for a mobile workforce. Labour force mobility has increased in recent years as new forms of employment have emerged. When workers change jobs frequently, including between employment and self-employment, having different schemes for employees and the self-employed may lead to multiple inactive accounts, which could be lost or depleted by fees. In that case, personal pension systems may be better adapted to mobile workforces, as the pension account is linked to the worker, irrespective of the employment status.

Alternatively, occupational pension systems could be extended to the self-employed. For example, multi-employer occupational pension plans established at the level of a profession, industry or sector, rather than for single employers, allow self-employed workers to join the plan corresponding to their profession, industry or sector. For example, in the Netherlands, certain self-employed workers have a professional pension fund (e.g. doctors, dentists), while others are covered by an industry pension fund together with employees (e.g. painters). Moreover, countries could promote multi-employer plans for unrelated employers of all sizes, as the United States did in 2019. Finally, self-employed workers in the gig economy may also be considered as employees of the platform provider and be entitled to occupational pensions. For example, in the United Kingdom, Uber announced in September 2021 that it would automatically enrol its eligible drivers into a pension scheme. The Pensions Regulator is encouraging all employers in the gig economy to do the same.[9]

Workplace personal pension plans are not a substitute for occupational pension plans but can harness some of the advantages associated with employer involvement. With workplace personal plans, the customisation of the plan design is much more limited than with occupational plans. Employers are also less engaged, as once the pension provider has been selected, their ongoing responsibilities, including with respect to contributions, are minor. However, if the employer makes a thorough assessment of the market before selecting the pension provider, a workplace personal plan has advantages for employees compared to other personal plans. The pension provider may offer plans at more competitive prices because of employers' ability to negotiate discounts and the prospect of enrolling many individuals at the same time. In addition, employees having access to an asset-backed pension plan in the workplace are more likely to save for retirement than if they need to arrange a personal plan by themselves. Paying contributions through payroll deductions also makes it easier to save.

Whether the provision of an asset-backed pension plan by employers should be mandatory or voluntary depends on the expected role of the scheme in the overall retirement income provision. Mandatory employer provision ensures that all eligible employees have access to a plan and can diversify their sources to finance retirement. Voluntary employer provision implies that some employees will have access to a plan but not others. This allows employers offering a plan to distinguish themselves in order to attract and retain employees.

Some countries alleviate pension obligations for small employers, acknowledging that there may be a size under which mandating employers to set up and contribute to a pension plan for their employees may be difficult. For example, in Quebec (Canada) and Türkiye, automatic enrolment duties start for employers with more than five employees. In Norway, only firms with at least two employees must set up an

occupational pension plan. This, however, may encourage small employers to remain small to avoid the obligation to set up or to contribute to a pension plan.

2.4.2. Ensure good conditions for the provision of asset-backed pension arrangements

The legal, regulatory and tax framework that applies to asset-backed pension arrangements should be stable over time. Given the long-term nature of retirement savings, employers may value having some certainty over the role that they are expected to play in the short, medium and long term. This would give them the opportunity to assess the commitments that lie ahead and to plan appropriately to be able to fulfil the different requirements. For example, stability of tax rules allows keeping constant the incentive for employers to contribute to their employees' pension plans. Stable funding and solvency rules for DB plans also allow employers to assess the likelihood of a funding shortfall and plan accordingly.

Another necessary condition for employers to be involved in the provision of asset-backed pension arrangements is to ensure that well-functioning capital markets and financial institutions are in place (see also Chapter 1). Employers need to be sure that the plan they offer will be cost-effective, as otherwise, they may favour other types of remunerations. In this context, well-functioning capital markets and financial institutions are important to ensure productive and diversified investment of retirement savings and the efficient management of risks.

2.4.3. Reduce barriers that prevent employers from establishing pension plans

Policy makers could reduce some of the barriers that prevent employers from establishing occupational pension plans in voluntary systems. Such barriers refer to costs, administrative burden and difficulties to fulfil requirements in times of large aggregate economic shocks. Reducing these barriers may also help alleviate employers' concerns and lower employer opposition when discussing the establishment of a mandatory occupational pension system. Some of the measures may target small employers specifically, as they are likely to face bigger challenges to establish asset-backed pension arrangements.

Reduce costs

Countries could provide financial support to help employers, in particular smaller ones, to set up an occupational pension plan. For example, in the United States, employers with up to 100 employees can qualify for a tax credit to cover part of their set-up costs.[10] The tax credit is 50% of the employer's start-up costs, up to the greater of USD 500 or USD 250 multiplied by the number of non-highly compensated employees who are eligible to participate in the plan, up to USD 5 000. The employer can claim the tax credit for three years to cover costs to set up and administer the plan, as well as to educate employees about the plan. As another example, in the United Kingdom, employers using Nest, the workplace pension scheme set up by the government, to implement automatic enrolment do not have to pay set-up charges for the scheme.

Another way to reduce costs for employers is to provide financial incentives to contribute to an asset-backed pension plan. In some countries, employer contributions to asset-backed pension plans enjoy a beneficial treatment regarding social contributions, thereby providing an incentive for employers to compensate employees in the form of pension contributions instead of wages.[11] This is the case for example in Australia, Austria, Belgium, France, Germany, Italy and Portugal, where employer pension contributions are not subject to social contributions or benefit from a reduced rate (OECD, 2021[31]). This lowers the amount of social contributions that employers have to pay on behalf of the employee, compared to a situation where the employer would pay a higher salary, as salaries are fully subject to social contributions. Employers may also get tax incentives. For example, in Germany, employers contributing at least EUR 240 per year to an occupational pension scheme on behalf of a low-income employee

(i.e. earning less than EUR 2 575 per month), in addition to the regular wage payment, can get a tax allowance of 30% of the contribution, up to a maximum contribution of EUR 960 (OECD, 2021[31]).

Multi-employer plans can also offer a solution to achieve scale and reduce costs for employers, in particular smaller ones. Multi-employer plans established by social partners in the context of collective agreements (e.g. Belgium, Germany, Iceland, Italy and the Netherlands) allow the plan to achieve scale by covering many employees from the same sector or industry. In Belgium, for example, sector plans are encouraged through the exemption of the 4.4% premium tax on contributions. Alternatively, multi-employer plans may be open to any employer. For example, the SECURE Act in the United States introduced pooled employer plans in 2019. These plans provide a way for unrelated employers with no common interest or other organisational relationship to set up a common plan for their employees. Similarly, master trust schemes, such as in Ireland and the United Kingdom, are financial institutions in charge of administering several pension plans for distinct unrelated employers.

Alleviate the administrative burden

Asset-backed pension arrangements can be designed to minimise the burden on employers related to plan set up and administration. For example, OregonSaves in the United States is a state-backed programme where employers have to enrol automatically their employees into an individual retirement account (IRA), when these employees are not already covered by an occupational pension plan. Sign-up to the programme by employers is quick, easy and free. Employers do not have to pay any fees, they do not have fiduciary responsibility, and they have minimal ongoing responsibilities. These responsibilities are mostly to enrol employees and submit employee contributions through payroll deductions. According to a survey run by The Pew Charitable Trusts in 2019 and 2020, 73% of employers had a positive or neutral experience with OregonSaves when asked about both the registration and ongoing facilitation of the programme.[12] Overall, smaller companies expressed higher satisfaction with OregonSaves than larger ones, maybe because they are more receptive to the opportunity of having an alternative to traditional occupational pension plans.[13]

Countries can also remove some of the complexity and administrative burden for selected asset-backed pension plans as long as certain criteria are met. For example, in the United States, there are three types of 401(k) plans available to employers, traditional, SIMPLE[14] and safe harbour plans. Employer and employee contributions are subject to complex non-discrimination rules in traditional 401(k) plans. In particular, the employer must perform annual tests, known as the Actual Deferral Percentage (ADP) and Actual Contribution Percentage (ACP) tests, to verify that contributions made by and on behalf of lower-earning employees are proportional to the contributions for higher-earning employees. By contrast, safe harbour and SIMPLE 401(k) plans are not subject to the complex annual non-discrimination tests. In exchange, immediate vesting of employer contributions is required.

To limit the administrative burden on employers, countries may also set up a clearinghouse institution to channel contributions to the different pension providers when these are selected by employees. When employees select their own pension provider, it may be cumbersome for employers to identify the amount of contributions that they must remit to each pension provider. The use of an institution acting as a clearinghouse greatly simplifies the task for employers, as their role is limited to remit the contributions to that institution, which then remits the contributions to the pension provider selected by each employee. The clearinghouse can be the social security institute (e.g. Lithuania), the tax authority (e.g. New Zealand), the Central Bank (e.g. Mexico), or an institution established by the market participants (e.g. Chile and Colombia). In Australia, there is a clearinghouse just for small employers. The Small Business Superannuation Clearing House (SBSCH) is a free service for employers with 19 or fewer employees or an annual aggregated turnover of less than AUD 10 million. Using the SBSCH is an easy way for small employers to comply with their mandatory pension contributions requirement.

Some countries have also implemented measures to streamline contributions made by employers. For example, Australia introduced SuperStream in 2014 to improve the efficiency of superannuation payments by employers. Before this reform, many employers had to process contributions to numerous funds in different formats. SuperStream is a mechanism to transmit money and standardised information consistently across all stakeholders (i.e. employers, pension funds, service providers and the tax authority). A unique identifier links employee information to the contribution payment. This allows employers to make all of their contributions in a single transaction, even if the payments go to multiple pension funds. To meet SuperStream requirements, employers may use their payroll system, a clearinghouse, a superannuation fund, or an electronic fund transfer facility.

Multi-employer plans can also reduce the administrative burden on employers. These plans allow many of the administrative and fiduciary responsibilities of sponsoring an asset-backed pension plan to be transferred to a third party, such as social partners or pension providers. This reduces the burden on participating employers, compared to sponsoring their own occupational pension plan.

Alternatively, policy makers could promote workplace personal pension plans as a complement to occupational pension plans. The role of the employer in a workplace personal plan is reduced compared to an occupational plan (Table 2.1), thereby reducing the cost and administrative burden. Meanwhile, search costs are reduced for employees as the employer selects the pension provider. Employers may also be able to negotiate better terms (e.g. lower fees) than what employees may be able to find in the retail market. Finally, workplace personal plans allow contributions to be directly deducted from payroll, making it easier for employees to save. Examples of workplace personal plans can be found in Ireland, the United Kingdom and the United States.

Finally, countries could establish a public pension provider to facilitate the selection of the provider for small employers. For example, Nest in the United Kingdom is a workplace pension scheme run by a not-for-profit public corporation. Nest must accept all employers, no matter what size, that apply to use it for their automatic enrolment duties. This is particularly important for small employers, as they may find it harder to find pension providers at competitive prices. Indeed, research shows around 35% of employers who selected Nest as a provider had been turned away from another provider first (Nest Corporation, 2015[32]). Moreover, Nest does not charge fees on employers and, thanks to its large scale, charges low fees to members to cover for plan administration, asset management and transaction costs.[15]

Provide flexibility in times of large aggregate economic shocks

More employers may feel comfortable setting up a plan if they know that governments will implement temporary relief measures in times of large aggregate economic shocks. For example, during the COVID-19 crisis, several countries provided temporary relief to employers with respect to their pension obligations (OECD, 2020[33]). Relief measures included flexibility towards funding and solvency rules for DB plans (e.g. Germany and the United Kingdom), subsidising employer contributions through job-retention schemes (e.g. Iceland and the Netherlands), allowing employers to defer, reduce or suspend their contributions (e.g. Belgium, Finland and Poland), or postponing the introduction of reforms (e.g. Poland). However, some of these measures come at the cost of reduced future retirement income and potential adequacy problems. It is, therefore, important to revert to normal rules once the emergency is over (OECD, 2020[33]).

2.4.4. Allow employers to tailor the design of the plan while ensuring non-discriminatory treatment across different categories of workers

Employers should have some discretion regarding the design of the plan they establish. This can help to tailor plan characteristics to the needs of their workforce and to their objectives in terms of worker recruitment and retention. Regulation should provide flexibility and give the opportunity to employers to

choose the most suitable model for retirement savings. Employer options could refer to various design features, such as:

- The type of plan (e.g. DB or DC);
- The eligibility criteria for joining the plan;
- Whether participation for eligible employees is voluntary, mandatory or automatic with an opt-out option;
- The level of employer and employee contributions, as well as the vesting rules;
- The investment options offered to members (in DC plans);
- Whether the plan offers survivor and disability coverage;
- The portability rules when employees leave the employer before retirement;
- The normal and early retirement ages, as well as the retirement benefit options;
- Whether members can access funds before retirement or can take loans.

However, employer choice should take place within the constraints of a legal framework to ensure a minimum level of harmonisation. Employers do not make their choices in a vacuum as social, labour and tax laws and regulations already define some boundaries for selected design features. Such laws and regulations should address situations where employers and employees may have diverging interests regarding plan design.[16]

Policy makers should ensure that employees have non-discriminatory access to occupational pension plans, in line with the OECD Recommendation on Core Principles of Private Pension Regulation. This is what most countries do. For example, in Canada, employers may cover selected classes of employees only rather than all employees. The classes of employees are determined objectively by the terms and nature of employment (e.g. salaried employees; hourly employees; unionised employees; non-unionised employees; supervisors; managers; executives/corporate officers; employees at a specific location or in a specific division). In addition, exclusions from plan participation based on age, gender, marital status and nationality should be avoided.

In addition, when occupational pensions are expected to play a key role in retirement income provision, the use of economic eligibility criteria should be limited or even eliminated. In particular, countries should limit the use of eligibility criteria based on salary, working hours, length of employment and type of contract (OECD, 2019[24]). For example, employers in Belgium cannot discriminate plan access based on contract type (fixed or temporary contract) or working time (full time or part time). The SECURE Act of 2019 in the United States requires plan sponsors to extend eligibility to part-time employees with at least three years of service.[17] Such rules improve access to occupational pension plans for part-time and temporary employees.

Regulations may also encourage employers to offer access to a broad base of their employees. For example, in the United States, non-discrimination tests in traditional 401(k) plans may induce employers to implement automatic enrolment and automatic escalation of contributions to make sure lower-earning employees participate in the plan. Indeed, if contributions made by and on behalf of higher-earning employees exceed certain thresholds, the employer needs to take corrective action, such as distributing the excess contributions to the higher-earning employees[18] or making a contribution to all lower-earning employees. To avoid this problem, employers should target a high participation rate and sufficient contributions among lower-earning employees. Automatic enrolment and automatic escalation of contributions can contribute to reaching that objective.

Policy makers should also limit vesting periods to avoid disadvantaging employees switching jobs frequently. Immediate vesting of employer contributions is the norm for mandatory and quasi-mandatory occupational pension systems. In voluntary systems, immediate vesting also applies in Belgium, Canada, Italy, New Zealand, Spain and the United Kingdom, for instance. Otherwise, the maximum vesting period

is usually up to three years (OECD, 2019[24]). In the United States, the vesting period may be stretched over six years as long as part of the employer contributions start vesting after two years.

Portability rules should also facilitate the consolidation of workers' pension rights and assets, in particular for those changing jobs frequently. The vast majority of countries allow individuals who are changing jobs to move their savings from their former employer's occupational DC pension plan to the plan of their current employer or to a similar alternative financial instrument or institution (OECD, 2019[24]). However, this is usually not automatic and many people just leave their assets in the plan of their former employer. Australia recently introduced "stapling", where employees will take their existing superannuation account with them when they change employment, instead of being defaulted into an employer's nominated fund. This stops the creation of multiple accounts. However, it does not prevent situations where individuals would remain with a pension provider charging high fees. The Pensions Policy Institute (2020[34]) presents different options to consolidate pension accounts as well as their trade-offs.

2.4.5. Encourage the use of behavioural strategies and facilitate the provision of financial education

Employers can implement behavioural strategies to foster participation and contributions from their employees. These strategies include automatic enrolment, matching contributions and automatic escalation of contributions. Moreover, behavioural strategies may need to be complemented by financial education programmes to help employees to improve their financial literacy and engage with their retirement savings.

Automatic enrolment

The role of the employer is essential in most countries with schemes using automatic enrolment. In nine OECD countries out of ten allowing schemes with automatic enrolment, the entity in charge of enrolling eligible workers is the employer (OECD, 2019[35]).[19] National or sub-national laws require employers to offer access to a pension plan and to enrol eligible employees automatically into it in seven countries.[20] By contrast, in four countries,[21] plan access and automatic enrolment are voluntary for employers.[22] Evidence from Canada, where employer obligation varies by province, shows that mandatory employer participation results in a greater number of enrolled members than voluntary employer participation (OECD, 2019[35]).

Different aspects need to be considered to increase the chances of success of automatic enrolment at increasing participation. This depends on whether employers' implementation of automatic enrolment is voluntary or mandatory.

Regulation can encourage employers' adoption of automatic enrolment when this is a voluntary feature. For example, in the United States, employers offering a DC plan may have difficulties passing the non-discrimination tests as low-income employees are less likely to join the plan than high-income employees. By increasing participation among low-income employees, automatic enrolment improves the results of non-discrimination tests. Between 2003 and 2017, the proportion of large DC plans using automatic enrolment increased from 2% to 41% (Arnoud et al., 2021[36]). The motivation to pass the non-discrimination tests is likely to be one of the factors behind the wider adoption of automatic enrolment in US occupational plans (Butrica and Karamcheva, 2015[37]).

Financial support to employers can also be tied to the implementation of automatic enrolment. For example, in the United States, the SECURE Act introduced in December 2019 a tax credit of USD 500 per year for three years for employers with up to 100 employees implementing automatic enrolment. This comes in addition to the start-up costs tax credit.

When regulation imposes automatic enrolment to employers, gradual introduction and use of already existing payroll-deduction systems are likely to facilitate employer implementation of the policy. A gradual introduction allows employers, in particular smaller ones, to adjust to the change. In most countries, larger

employers were the first to be required to implement the policy, with smaller employers joining in stages over several months or years (OECD, 2019[35]).[23] Using existing payroll-deduction systems to channel contributions can also reduce the administrative burden for employers. This is what New Zealand did for example, and employers reported that the impact of implementing KiwiSaver on their workload had been minimal (Inland Revenue, 2015[38]).

Matching contributions

Employers may use different designs for matching contributions. The matching contribution may be expressed as a percentage of the employee's own contribution. For example, in the United States, among Vanguard DC plans offering a matching contribution in 2020, 72% used a single-tier match, such as 50% of the employee contribution up to 6% of salary (i.e. a maximum employer contribution of 3% of salary). The second most popular type of formula, used by 21% of plans, was a multi-tier match, for example 100% of the employee contribution up to 3% of salary and 50% of the employee contribution on the next 2% of salary (i.e. a maximum employer contribution of 4% of salary) (Vanguard, 2021[39]). Alternatively, the employer matching contribution may be expressed as a percentage of the employee's salary. For example, in New Zealand, employers must contribute at least 3% of wages for employees contributing into a KiwiSaver plan. In some countries, such as Iceland and Italy, collective agreements define the level of employer matching contribution.[24]

Regulation can play a role in guiding employers' choice over the design of the matching formula. For example, in the United States, employers can adopt alternative safe-harbour plans to get certain exemptions under the non-discrimination rules. The first alternative is to offer all non-highly compensated employees (NHCEs) an employer contribution equal to at least 3% of pay. The second alternative is to offer NHCEs an employer matching contribution. When the employer enrols eligible employees automatically into the plan, the matching formula must be 100% match on contributions up to 1% of salary and 50% match on the next 4% of salary. Otherwise, the matching formula must be 100% match on contributions up to 3% of salary and 50% match on the next 2% of salary.[25] According to Arnoud et al. (2021[36]), in 2017, more than 40% of large DC plans offering an employer matching contribution satisfied one of the safe-harbour matching formulas.

The different matching formulas have distinct consequences for workers in different income groups. A single-tier match tends to favour higher-income earners because they are more likely to have the financial capacity to contribute a higher percentage of their earnings. For example, with a 50% match rate up to 6% of salary, an employee contributing 6% of salary will receive the maximum employer matching contribution of 3% of salary. By contrast, an employee who can only afford to contribute 3% of salary will receive an employer matching contribution of 1.5% of salary. A multi-tier match can address this regressive feature to some extent, while keeping an incentive to contribute more. Such formulas provide a higher match rate for the first units of contributions and reduce the match rate for contributions beyond a certain level. Assuming a 100% match rate on the first 3% of salary and 50% on the next 2% of salary, an employee contributing 6% of salary will receive 4% of salary from the employer, while an employee contributing 3% of salary will receive 3% of salary. The gap between the two employees is therefore reduced compared to the single-tier match. When the match is directly expressed as a percentage of salary, all contributing employees receive the same percentage employer matching contribution, irrespective of their own level of contribution. Matching formulas may also include a floor in nominal terms to provide additional support to lower-income employees.[26] For example, the employer may contribute the greater of 100% on the first 4% of salary or USD 1 000. This means that employees earning less than USD 25 000 annually and contributing to their pension plan 4% of salary would get an extra boost in relative terms compared to higher earners.

Different individuals may also react differently to the level of the match threshold. The match threshold is the maximum employee contribution that the employer matches. This threshold may reduce the

contribution by those who might otherwise contribute more, as it serves as an anchor or employer recommendation for some individuals (Huberman, Iyengar and Jiang, 2007[40]). For low-income earners, a higher match threshold may discourage participation (Young and Young, 2018[41]) because they feel the effort to get the full employer matching contribution is beyond their financial capacity.[27] Still, Choi et al. (2002[42]) show that in a company that increased the match threshold, without changing the match rate, the proportion of employees contributing at higher rates increased.

There is also the practice of "stretching the match", which consists in lowering the match rate while increasing the match threshold once a matching contribution is in place. However, stretching the match may have a negative impact on participation and employee contributions. For example, instead of offering a 100% match on contributions up to 6% of salary, the employer can offer a 75% match on the first 8% of salary. The maximum employer contribution is still 6% of salary, but the employee needs to contribute an additional 2% of salary to get it. It is intended to motivate participants to contribute at higher rates without increasing employer costs. However, given individuals' tendency for inertia, some may not increase their contribution rate in response to the change, and thereby receive a lower employer matching contribution. In addition, lower-income earners may be unable or unwilling to contribute a higher percentage. Absent an analysis of plans that actually implemented this strategy, Young and Young (2018[41]) compared pension plans with an equivalent maximum employer contribution but different match thresholds that mimic a stretched match. They find that stretched formulas (lower match rates and higher match thresholds) are associated with lower employee and employer contribution rates than non-stretched formulas.[28]

Finally, employers may have the choice between offering matching contributions on top of the employee's basic salary, and including matching contributions in the total remuneration package. This determines whether employees contributing to the pension plan will receive a higher net remuneration than those who do not contribute. For example, in New Zealand, the default approach is for employer matching contributions to KiwiSaver to be made on top of gross salary. Hence, a KiwiSaver member earns effectively 3% more than a non-member, creating an incentive to join and contribute to the scheme. The alternative solution is for employers to incorporate their contributions to KiwiSaver in the total remuneration package. This allows everyone in the company who does the same job to be paid the same gross remuneration regardless of whether they are members of KiwiSaver. Each employee then decides how to allocate their gross income (e.g. employer KiwiSaver contribution versus higher take-home pay). While paying matching contributions on top of the basic salary provides an incentive for employees to contribute, this may raise equity issues (Retirement Policy and Research Centre, 2020[43]). Indeed, workers who cannot afford to pay the minimum KiwiSaver employee contribution or those who are not eligible for employer contributions (e.g. those aged 65 and older) are paid less than the others, even though they perform the same job. Moreover, if employer contributions slow the pace of wage growth, non-members eventually subsidise the savings of the others through lower wage growth.

Automatic escalation of contributions

Another behavioural strategy that employers have been experimenting and implementing in occupational DC pension plans is the automatic escalation of contributions. The initial idea developed by Thaler and Benartzi (2004[44]) was to ask employees to commit to future increases in their contribution rate each time they get a pay raise. This feature reduces the feeling of loss of a cut in take-home pay and mitigates the affordability issue of increased contributions for low-income earners. Similarly to automatic enrolment, the employee can opt out of automatic escalation at any time. US companies have tried this strategy first, as employers were willing to increase the contribution rate of low-income earners to improve non-discrimination performance results (Thaler and Benartzi, 2004[44]).

Automatic escalation is often a default option associated with automatic enrolment. This is because default contribution rates in schemes using automatic enrolment tend to be low to minimise opt-out rates.[29] Among the DC plans managed by Vanguard in the United States, 69% of plans using automatic enrolment had

automatic annual contribution rate increases in 2020, most often by 1% of salary (Vanguard, 2021[39]). Among these plans, 46% capped the increase at 10% of salary. Among plans not using automatic enrolment, the use of automatic escalation raised from 16% of plans in 2011 to 34% in 2020 (Vanguard, 2021[39]).

Automatic escalation may not work for workers changing jobs frequently, such as temporary employees. When workers change employers, if they join the plan of the new employer (provided one is offered), the new plan may not have automatic escalation in place. Even if there is automatic escalation, workers may start all over again from a low default contribution rate. Workers may never reach the maximum contribution rate and therefore under-save for retirement during their entire career.

Alternatively, employers may use higher default contribution rates. Beshears et al. (2017[45]) show that selecting a higher default contribution rate (between 7% and 11% of salary instead of 6%) can increase contribution rates without reducing participation rates, except for the highest default (11%). According to Vanguard (2021[39]), the proportion of plans with automatic enrolment choosing a default contribution rate of 6% or more increased significantly between 2011 and 2020, from 11% to 26%.

Financial education

Policy makers should encourage employers to provide financial education programmes about retirement savings to their employees. However, it is important to find the right balance between the need to improve the financial literacy of employees and the implications for employers. In voluntary systems, adding requirements to provide financial education programmes should account for the potential discouragement to employers from establishing asset-backed pension arrangements, as well as the potentially unsurmountable burden on small employers.

Delivering financial education in the workplace is not without challenges for employers. First, providing financial education involves additional costs, which may be more difficult to bear for small employers.[30] Second, employers may lack the expertise to organise financial education programmes. Third, employers may be reluctant to allocate a lot of time to communicate about matters not directly related to their business, especially for short-tenure employees or when there is high employee turnover. Moreover, employees themselves may have limited appetite to participate in financial education programmes (Bailey and Winkelmann, 2021[46]). Indeed, employees may face competing priorities with work tasks, they may have limited willingness to discuss their personal financial situation with other colleagues, and they may have limited interest to invest their time in financial education programmes not suited to their needs, in particular if they feel that thinking about retirement savings is not relevant to them right now.

Policy makers can provide support to employers to facilitate the delivery of workplace financial education programmes. Employers willing to organise and finance financial education programmes may lack the expertise and may not know where to start. Several countries, such as Canada, the Netherlands, New Zealand and the United Kingdom provide tips and resources to help employers build financial wellness programmes (OECD, 2022[19]). In the case of New Zealand for example, the government's "Sorted at Work" programme includes a series of courses and seminars, which are delivered by affiliated facilitators. Employers only need to choose the programmes they want to offer to their employees based on their budget (prices are fixed per group of participants) and the needs of their employees. The OECD/INFE's policy handbook on financial education in the workplace (OECD, 2022[19]) provides policy makers with suggestions of approaches and case studies to developing and implementing financial education in the workplace (Box 2.1).

Box 2.1. Suggested policy approaches to developing and implementing financial education in the workplace

The OECD Recommendation on Financial Literacy recommends policy makers to establish transparent co-ordination and governance mechanisms when establishing and implementing their national strategies for financial literacy. This includes involving relevant private and non-for-profit stakeholders to the extent possible, for example employers. Additionally, it recognises that workplaces are environments that can be conducive to learning and are likely to support effective delivery of financial literacy programmes.

In line with this, the OECD International Network on Financial Education (OECD/INFE) developed the policy handbook on financial education in the workplace. The policy handbook discusses the motivations for implementing financial education programmes in the workplace and shares relevant case studies, challenges and lessons learnt from OECD/INFE members. Based on this evidence and experience, it sets out four groups of policy suggestions for policy makers and other stakeholders interested in the design and implementation of financial education in the workplace:

Promote a strategic and co-ordinated approach to financial education in the workplace

- Consider including employees among the target groups of co-ordinated and strategic financial literacy frameworks
- Create co-ordination mechanisms that support the development of financial education for employees or in the workplace
- Integrate the views of multiple stakeholders to ensure that the preferences and needs of employers and employees are taken into account in policy making and programme design

Support the engagement of employers

- Highlight the business case to employers for providing financial education to employees
- Leverage social recognition through public champions and corporate responsibility
- Assist employers by providing guidance and tools
- Lead by example by implementing programmes for public institutions employees

Encourage the participation of employees

- Design a good communication plan to increase awareness and motivation
- Propose incentives such as rewards and certificates
- Create a safe environment to discuss about financial issues and emphasise peer-to-peer support

Programme design and implementation

- Create a full circle, evidence-based approach
  - Conduct needs' assessment diagnosis to identify financial education needs and vulnerable groups among employees
  - Make pilots and tests before full scale implementation
  - Assess the impact and effectiveness of the programmes
- Propose a combination of programmes prioritising behavioural change
  - Using a variety of financial education solutions
  - Applying behavioural insights to financial education to support behavioural change

Source: OECD (2022[19]), *Policy handbook on financial education in the workplace*, https://doi.org/10.1787/b211112e-en

Alternatively, or as a complement to employers providing financial education, pension providers themselves could conduct financial education programmes. For example, since July 2014, KiwiSaver default providers in New Zealand are responsible for addressing the financial literacy of their members, in particular those in default funds. The Financial Markets Authority requires default providers to report quarterly about how they engaged with their default members to encourage them to choose an investment; and the number of default members making an active fund choice.[31] This strategy has led to higher member engagement.[32] Overall, the proportion of default members making an active investment choice increased from 6% in 2016 to 11% in 2021.[33] While some default providers engage with their members using mostly written generic advice, others call their members on the phone to help them make an active choice. Good practices to engage with default members include making several follow-up calls if the first one is not successful, tailoring the conversation to the individual, taking the member through a risk profile questionnaire, and arranging the fund switch while the member is still on the phone.[34] As a result of the financial education efforts, the proportion of members in default funds has declined, from 17.1% in March 2016 to 11.5% in March 2021.[35] Since 1 December 2021, six new default providers have been appointed. They must now engage with members at key milestones, such as when they first join, and ten years and one year before they turn 65; after a first home withdrawal; when annual statements are sent out; during significant market volatility; and after 18 months without contributing.

2.4.6. Provide the necessary framework for good governance

The identification and management of conflicts of interest can help to reduce any misalignment of interest between employers, as plan sponsors, and employees, as plan members. The OECD Recommendation on Core Principles of Private Pension Regulation states that pension entities should have adequate internal controls in place, including a conflict of interest policy for the members of the governing body and the staff of the pension entity. Conflicts of interest may arise for employer representatives in the governing body of the pension entity. For example, the employer may seek to reduce the costs related to scheme administration, which may lead to poorer administration of the members' pension accounts. This situation constitutes a conflict of interest for the employer's representatives.[36] Regulators and supervisors can provide guidance to manage this type of situation. For example, The Pensions Regulator (TPR) in the United Kingdom provides guidance to trustees to effectively identify, monitor and manage conflicts of interest. It provides a set of principles of sound conflict management arrangements and examples to illustrate specific cases.[37]

Different approaches are possible to address the issue of skill deficit in the governing body of occupational pension funds. The members of the governing body should collectively reach a balance between expertise, representativeness and independence from the sponsor. Member and employer representatives are important to ensure that the interests of both parties are accounted for. However, membership in the governing body should be subject to minimum fit and proper standards (OECD, 2016[16]) and it may be difficult to appoint representatives with the appropriate set of skills. One way to address this issue is to require the presence of independent external experts in the governing body. For example, the Pension Fund Governance Reinforcement Act of 2014 increased the representation of independent expertise on the governing bodies of Dutch pension funds. Training programmes for the members of the governing body are also useful to increase skills. For example, TPR in the United Kingdom offers a trustee toolkit online learning programme. New trustees must acquire the appropriate knowledge and understanding within six months of being appointed, and this toolkit helps them achieve this without incurring any additional cost.

When employers have to enrol their eligible employees into a pension plan, regulation should prevent employers from persuading employees to opt out. For example, in the United Kingdom, employers must not take any action with the sole or main purpose to encourage or influence employees to opt out or cease membership. Similarly, they cannot try to screen out job applicants on grounds relating to potential pension scheme membership. Individuals can make a complaint to TPR about an alleged inducement or prohibited

recruitment conduct. TPR then investigates and follows a gradual approach in case of breach.[38] The number of whistleblowing reports about employers allegedly inducing employees to opt out has increased between April 2015 and April 2018, from 12 complaints in 2015/16, to 38 in 2016/17, and 64 in 2017/18, showing that individuals use this mechanism.[39]

Finally, consolidation can achieve the dual goal of achieving economies of scale and improving governance. Consolidation increases pension funds' ability to negotiate discounts with service providers, access a wider range of investments and spread operational costs over a larger membership base. Several countries are encouraging pension funds to consolidate by raising governance requirements. For example, there has been a significant reduction in the number of superannuation funds in Australia over the past years, from 279 in June 2013 to 145 in March 2022.[40] According to the Australian Prudential Regulation Authority (APRA), this consolidation is mainly the result of the introduction of the prudential framework for superannuation in 2013 and their continued effort to raise the bar that trustees need to pass, so that all trustees are better equipped to deliver good outcomes for members.[41] Similarly, in the United Kingdom, the occupational DC pension market has consolidated by nearly 40% between 2011 and 2021.[42] The government calls for more consolidation and introduced in 2020 a more detailed value for member assessment for schemes below GBP 100 million. This aims to improve governance and better serve members whilst accelerating the pace of consolidation.[43] The development of multi-employer arrangements and master trusts also favours consolidation. However, consolidation should not go too far so that oligopolistic behaviour develops instead.[44]

2.5. Conclusion

This chapter has provided policy guidance on how best to involve employers in the provision of asset-backed pension arrangements. It has shown that employers are involved to various degrees in OECD countries, depending on the type of plan developed at the national level. One of the key roles that employers currently play in most OECD countries is to pay a share of the total contributions to asset-backed pension plans.

Understanding the motivations for employers to be involved in the provision of asset-backed pension arrangements, as well as the advantages and potential challenges associated with employer involvement is essential to derive policy guidance for countries willing to develop the role of employers.

The main motivation for employers to establish an occupational pension plan is to attract and retain employees. On top of salaries, employers need other forms of remuneration to attract and retain the best employees for their business. As employees value pensions as part of their remuneration package, offering access to an asset-backed pension plan or contributing beyond the legal requirements can increase employee satisfaction and reduce turnover, thereby reducing hiring and training costs.

There is a wide range of advantages associated with employer involvement in the provision of asset-backed pension arrangements. Employers can use payroll deductions to channel employee contributions to the pension provider and they can also contribute themselves on behalf of their employees. When offering an occupational pension plan, employers can tailor the design of the plan to match the preferences of their employees, select features that can facilitate decision-making for employees, and bear some of the investment and longevity risks, as well as some of the costs associated with operating the plan. Employers can also be involved in the governance of the scheme, implement behavioural strategies to increase savings, and provide financial education to their employees.

However, employer involvement is not without challenges. In particular, participation rates may be lower, as employers may be unwilling or unable (e.g. small employers) to establish pension plans, employees may be unwilling to participate in plans established by their employer, and workers in non-standard forms of work may have more limited access to employer-sponsored plans. The barriers preventing employers

from establishing pension plans may be especially high for small employers who lack the resources, knowledge and skills to develop, implement and administer a pension plan. Moreover, relying on employers may result in the proliferation of small plans, which may lead to higher fees for members, worse governance and less innovative plan designs.

Countries willing to develop the role of employers in their asset-backed pension systems could consider the following policy guidance:

- Select the most appropriate degree of employer involvement by taking into account the structure of the labour market and the labour force mobility.
- Ensure good conditions for the provision of asset-backed pension arrangements by employers by providing a stable legal, regulatory and tax framework applying to asset-backed pension arrangements, and developing well-functioning capital markets and financial institutions.
- Reduce the barriers that prevent employers from establishing pension plans by reducing costs and alleviating the administrative burden, in particular for small employers, developing multi-employer arrangements, and providing flexibility in times of large aggregate economic shocks.
- Allow employers to tailor the design of the plan, while ensuring non-discriminatory treatment across different categories of workers.
- Encourage employers to use behavioural strategies to foster participation and savings, and facilitate the provision of financial education in the workplace in line with the OECD/INFE's policy handbook on financial education in the workplace (OECD, 2022[19]).
- Provide the necessary framework for good governance.

References

Allen, S., R. Clark and A. McDermed (1993), "Pensions, Bonding, and Lifetime Jobs", *The Journal of Human Resources*, Vol. 28/3, p. 463, https://doi.org/10.2307/146155. [9]

Arnoud, A. et al. (2021), "The Evolution of U.S. Firms' Retirement Plan Offerings: Evidence from a New Panel Data Set", *Center Papers* NB20-14, https://www.nber.org/programs-projects/projects-and-centers/retirement-and-disability-research-center/center-papers/nb20-14. [36]

Atkinson, A. et al. (2015), "Financial Education for Long-term Savings and Investments: Review of Research and Literature", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 39, OECD Publishing, Paris, https://doi.org/10.1787/5jrtgzfl6g9w-en. [20]

Augustus, J., R. Costello and E. Ponds (2021), *Pension conditions, job satisfaction and labour turnover - The role of the employer contribution in funding pensions*, https://www.netspar.nl/assets/uploads/16_Ponds_paperIPW.pdf. [12]

Bailey, J. and K. Winkelmann (2021), "Defined Contribution Plans: Challenges and Opportunities for Plan Sponsors", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3908085. [46]

Bauer, R. et al. (2020), "The Impact of Trustees' Age and Representation on Strategic Asset Allocations", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3743962. [25]

Beshears, J. et al. (2017), "How Do Consumers Respond When Default Options Push the Envelope?", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3050562. [45]

Brady, P. and M. Bogdan (2014), "Who gets retirement plans and why, 2013", *ICI Research Perspective*, Vol. 20/6, https://www.ici.org/system/files/attachments/per20-06.pdf. [49]

Brady, P. and M. Bogdan (2011), "Who Gets Retirement Plans and Why: An Update", *ICI Research Perspective*, Vol. 17/3, https://www.ici.org/system/files/attachments/pdf/per17-03.pdf. [2]

Butrica, B. and N. Karamcheva (2015), "Automatic enrollment, employer match rates, and employee compensation in 401(k) plans", *Monthly labor review/U.S. Department of Labor, Bureau of Labor*, https://doi.org/10.21916/mlr.2015.15. [37]

Choi, J. et al. (2004), *For better or worse: Default effects and 401(k) savings behavior*, National Bureau of Economic Research, http://www.nber.org/chapters/c10341. [27]

Choi, J. et al. (2002), "Defined Contribution Pensions: Plan Rules, Participant Choices, and the Path of Least Resistance", *Tax Policy and the Economy*, Vol. 16, pp. 67-113, https://doi.org/10.1086/654750. [42]

Collinson, C., P. Rowey and H. Cho (2021), *Navigating the Pandemic: A Survey of U.S. Employers*, Transamerica Institute, https://transamericainstitute.org/docs/default-source/research/ti-2021_sr_employers-navigating-the-pandemic.pdf. [6]

Department for Work and Pensions (2021), *Pension Charges Survey 2020*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951997/pension-charges-survey-2020.pdf. [18]

Falk, J. and N. Karamcheva (2018), "Comparing the Effects of Current Pay and Defined Benefit Pensions on Employee Retention", *Working Paper 2018-06*, https://www.cbo.gov/publication/54056. [47]

Fang, T. and D. Messacar (2019), "Voluntary Job Separations and Traditional versus Flexible Workplace Savings Plans: Evidence from Canada", *Canadian Public Policy*, Vol. 45/2, pp. 239-261, https://doi.org/10.3138/cpp.2018-032. [11]

Hernæs, E. et al. (2006), "The Determinants of Occupational Pensions", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.1032786. [10]

Huberman, G., S. Iyengar and W. Jiang (2007), "Defined Contribution Pension Plans: Determinants of Participation and Contributions Rates", *Journal of Financial Services Research*, Vol. 31/1, pp. 1-32, https://doi.org/10.1007/s10693-007-0003-6. [40]

Inland Revenue (2015), *KiwiSaver evaluation: Final summary report*, https://www.ird.govt.nz/about-us/publications/research-evaluation/kiwisaver. [38]

Ippolito, R. (1991), "Encouraging Long-Term Tenure: Wage Tilt or Pensions?", *ILR Review*, Vol. 44/3, pp. 520-535, https://doi.org/10.1177/001979399104400308. [8]

Kantar (2021), *Employer and provider survey on the development of company pension schemes*, https://www.bmas.de/DE/Service/Publikationen/Forschungsberichte/fb-567-arbeitgeberbefragung-zur-verbreitung-der-altersvorsorge.html. [22]

Keim, D. and O. Mitchell (2017), "Simplifying choices in defined contribution retirement plan design: a case study", *Journal of Pension Economics and Finance*, Vol. 17/3, pp. 363-384, https://doi.org/10.1017/s1474747217000336. [14]

Loretto, W., P. White and C. Duncan (2000), “Something for nothing?”, *Employee Relations*, Vol. 22/3, pp. 260-271, https://doi.org/10.1108/01425450010332532. [4]

Madrian, B. and D. Shea (2001), “The power of suggestion: Inertia in 401(k) participation and”, *The Quarterly Journal of Economics*, Vol. 116/4. [26]

McCarthy, D. (2006), “The Rationale for Occupational Pensions”, *Oxford Review of Economic Policy*, Vol. 22/1, pp. 57-65, https://doi.org/10.1093/oxrep/grj004. [5]

Mitchell, O. (1983), “Fringe Benefits and the Cost of Changing Jobs”, *Industrial and Labor Relations Review*, Vol. 37/1, p. 70, https://doi.org/10.2307/2522724. [7]

Nest Corporation (2015), *NEST insight 2015: Taking the temperature of auto enrolment*, http://www.nestpensions.org.uk/schemeweb/NestWeb/includes/public/docs/nest-insight-2015.pdf.pdf. [32]

Oakley, D. and K. Kenneally (2019), *Retirement Insecurity 2019: Americans’ Views of the Retirement Crisis*, National Institute on Retirement Security, https://www.nirsonline.org/wp-content/uploads/2019/02/OpinionResearch_final.pdf. [3]

OECD (2022), “Policy handbook on financial education in the workplace”, *OECD Business and Finance Policy Papers*, No. 07, OECD Publishing, Paris, https://doi.org/10.1787/b211112e-en. [19]

OECD (2021), *Financial incentives for funded private pension plans: OECD country profiles 2021*, https://www.oecd.org/daf/fin/private-pensions/Financial-Incentives-for-Funded-Pension-Plans-in-OECD-Countries-2021.pdf. [31]

OECD (2020), “Increasing the role of retirement savings plans for workers in non-standard forms of work”, in *OECD Pensions Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/a9e208e8-en. [30]

OECD (2020), “Retirement savings and old-age pensions in the time of COVID-19”, in *OECD Pensions Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/b698aae4-en. [33]

OECD (2020), “Sustainable risk sharing in retirement income arrangements”, in *OECD Pensions Outlook 2020*, OECD Publishing, Paris, https://doi.org/10.1787/4c996181-en. [15]

OECD (2019), “Are funded pensions well designed to adapt to non-standard forms of work?”, in *Pensions at a Glance 2019: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/1231a36d-en. [24]

OECD (2019), “The role of automatic enrolment schemes in enhancing funded pension systems’ inclusiveness and retirement income adequacy”, in *Inclusiveness and Finance*, https://www.oecd.org/finance/Financial-markets-insurance-pensions-inclusiveness-and-finance.pdf. [35]

OECD (2018), “Are financial incentives effective tools to increase participation in and contributions to retirement savings plans?”, in *Financial Incentives and Retirement Savings*, OECD Publishing, Paris, https://doi.org/10.1787/9789264306929-6-en. [1]

OECD (2018), “Improving retirement incomes considering behavioural biases and limited financial knowledge”, in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-8-en. [13]

OECD (2016), *OECD Core Principles of Private Pension Regulation*, https://www.oecd.org/finance/principles-private-pension-regulation.htm. [16]

Pensions Policy Institute (2020), *Policy options for tackling the growing number of deferred members with small pots*, https://www.pensionspolicyinstitute.org.uk/media/3545/20200723-deferred-members-final-report-for-the-website.pdf. [34]

Rekenthaler, J., J. Spiegel and A. Szapiro (2017), *Small Employers, Big Responsibilities*, https://www.morningstar.com/lp/small-employers-big-responsibilities. [28]

Retirement Policy and Research Centre (2020), "Would Total Remuneration improve KiwiSaver fairness?", *RPRC PensionBriefing* 2020-1, https://cdn.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/RPRC/PensionBriefing/PB%202020-1%20Total%20Remuneration%20and%20KiwiSaver%20Final.pdf. [43]

Stewart, F. and J. Yermo (2008), "Pension Fund Governance: Challenges and Potential Solutions", *OECD Working Papers on Insurance and Private Pensions*, No. 18, OECD Publishing, Paris, https://doi.org/10.1787/241402256531. [17]

Thaler, R. and S. Benartzi (2004), "Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving", *Journal of Political Economy*, Vol. 112/S1, pp. S164-S187, https://doi.org/10.1086/380085. [44]

The Australian Government the Treasury (2020), *Retirement Income Review*, https://treasury.gov.au/publication/p2020-100554. [48]

U.S. Bureau of Labor Statistics (2021), "Retirement benefits: Access, participation, and take-up rates, March 2021", *National Compensation Survey*, https://www.bls.gov/news.release/ebs2.t01.htm. [23]

Vanguard (2021), *How America Saves*, https://institutional.vanguard.com/content/dam/inst/vanguard-has/insights-pdfs/21_CIR_HAS21_HAS_FSreport.pdf. [39]

Vanguard (2021), *How America Saves 2021*, https://institutional.vanguard.com/content/dam/inst/vanguard-has/insights-pdfs/21_CIR_HAS21_HAS_FSreport.pdf. [29]

Vitt, L. (2014), "Raising Employee Engagement Through Workplace Financial Education", *New Directions for Adult and Continuing Education*, Vol. 2014/141, https://doi.org/10.1002/ace.20086. [21]

Young, G. and J. Young (2018), *Stretching the match: Unintended effects on plan contributions*, https://institutional.vanguard.com/VGApp/iip/site/institutional/researchcommentary/article/InvResStretchingMatchEffects#. [41]

Notes

[1] In addition, employers in some countries have to enrol eligible employees automatically into a personal pension plan and select the pension provider (e.g. Türkiye and certain state-backed programmes in the United States).

[2] In some cases, employee participation is mandatory once the employer establishes a plan, such as in Belgium.

[3] However, pensions may not be the most powerful tool to retain employees. For example, Falk and Karamcheva (2018[47]) show that salaries have a larger effect on job tenure than DB pensions. A 2% cut in current pay would decrease average job tenure by 2.3 quarters, as compared to 0.9 quarter for an equivalent 10% cut to pension benefits.

[4] Job separation was measured over intervals of two years.

[5] For example, the Australian 2020 Retirement Income Review identifies several studies showing that the majority of increases in the employer mandatory contribution rate come at the expense of growth in wages (The Australian Government the Treasury, 2020[48]).

[6] In some countries, employers nominate representatives in a supervisory board, which supervises the governing body.

[7] Source: OECD Global Pension Statistics.

[8] Brady and Bogdan (2014[49]) suggest that, in the United States, workforce composition may also partially explain why smaller employers are less likely to offer an occupational pension plan.

[9] A pension revolution, but more work to do | The Pensions Regulator Blog

[10] Eligible plans are SEP, SIMPLE IRA and qualified plans, such as 401(k) plans.

[11] Social contributions are usually levied on gross salaries and wages to finance among other things, health insurance, unemployment insurance, public pensions and disability pensions.

[12] See Employers Express Satisfaction With New Oregon Retirement Savings Program | The Pew Charitable Trusts (pewtrusts.org) and Is the OregonSaves Retirement Program Expensive for Employers? | The Pew Charitable Trusts (pewtrusts.org)

[13] OregonSaves Auto-IRA Program Works for Employers | The Pew Charitable Trusts (pewtrusts.org)

[14] SIMPLE stands for “Savings Incentive Match PLan for Employees”.

[15] Members pay a 1.8% charge on contributions plus a 0.3% charge on assets. In addition, there are no fees when members switch their investment fund, change their retirement date or transfer to another pension provider.

[16] In addition, publishing statistics on plans established by employers increases transparency towards individuals. For example, CONSAR in Mexico publishes statistics from the electronic register of occupational pension plans, see https://www.consar.gob.mx/gobmx/aplicativo/sirepp/(S(rhjpjeoha0yrinu03alfnsmh))/Estadisticas.aspx.

[17] Employers have been required to track years of service since 2021, thus long-term, part-time workers will first be eligible in 2024. Recent legislative proposals would reduce the length of service for part-time employees to two years.

[18] This distribution is taxable for the employee.

[19] The ten OECD countries allowing schemes with automatic enrolment are Canada, France, Germany, Italy, Lithuania, New Zealand, Poland, Türkiye, the United Kingdom and the United States. In Lithuania, the State Social Insurance Fund Board (Sodra), which is responsible for collecting all social insurance contributions, enrols automatically workers aged under 40, both employees and the self-employed, into one of the pension funds.

[20] Canada (in the province of Quebec), Italy, New Zealand, Poland, Türkiye, the United Kingdom and the United States (for state-based auto-IRAs).

[21] Canada (in the provinces of British Columbia, Ontario, Manitoba, Nova Scotia and Saskatchewan, and at the federal level), France, Germany and the United States (for occupational plans).

[22] Except in Canada, where, once the employer sets up a pooled registered pension plan, the enrolment of eligible employees into it has to be automatic.

[23] This was not the case in New Zealand were all employers were required to implement automatic enrolment at the same time. However, as the target population only refers to newly hired employees, the initial burden was manageable.

[24] In Iceland, the employer must contribute at least 2% of wages for all employees contributing themselves at least 2% of wages into a voluntary personal pension plan.

[25] Any other matching formula that is at least as generous is also possible. This means that the maximum aggregate matching contribution must be at least 4% of salary and aggregate matching contributions are at least equal to the first formula at all percentages of salary an employee could contribute. For example, a 100% match up to 4% of salary also qualifies.

[26] DC 2.0: Three Paths To More Equitable Retirement Programs | Seeking Alpha

[27] Young and Young (2018[41]) show that, on a sample of 328 plans with voluntary opt-in enrolment, a higher match threshold reduces the employee contribution rate when considering all eligible non-highly compensated employees (i.e. including non-participants with a 0% contribution rate). When running the regression on plan participants only, the opposite effect is found.

[28] The authors compare three pairs of matching formulas: 100% on 3% of salary paired with 50% on 6% of salary; 100% on 4% of salary paired with 50% on 8% of salary; and 100% on 5% of salary paired with 50% on 10% of salary. The analysis includes both participants and eligible non-participants with a 0% contribution rate. The impact of stretched formulas on employee contribution rates therefore also includes the effect on participation.

[29] In 2020, 43% of Vanguard DC plans with automatic enrolment had a default contribution rate of 3% or less (Vanguard, 2021[39]).

[30] For example, in Mexico, financial wellness programmes are mostly implemented by large corporations.

[31] An active fund choice includes when members switch out of their provider's default fund into another of the provider's funds, and when members decide to remain in the default fund.

[32] Although increased engagement is positive, active fund choice may result in poor fund performance, especially if fund switching is motivated by market timing or driven by misleading advice.

[33] OECD calculation based on past KiwiSaver reports: KiwiSaver Report | Reports and papers | FMA.

[34] 161004-FMA-KiwiSaver-Report-2016.pdf

[35] Kiwisaver-AR-2021.pdf (fma.govt.nz)

[36] This type of conflict may be less likely to apply to employers who choose to be involved in the provision of asset-backed pension arrangements and want good value for the money they invest in the plan on behalf of their employees.

[37] Conflicts of interest | The Pensions Regulator

[38] Safeguarding individuals - automatic enrolment detailed guidance for employers | The Pensions Regulator

[39] [ARCHIVED CONTENT] Reports received of employers encouraging employees to opt out | The Pensions Regulator (nationalarchives.gov.uk)

[40] Myths and misconceptions should be no barrier to super consolidation | APRA and Quarterly superannuation statistics | APRA

[41] Data find: Number of APRA-regulated superannuation funds from 2008 to 2018 | APRA

[42] Defined contribution pension market consolidation continues, TPR's latest figures show | The Pensions Regulator

[43] Future of the defined contribution pension market: the case for greater consolidation - GOV.UK (www.gov.uk)

[44] In addition, even small pension funds may be able to achieve economies of scale and efficiency when they have close organisational links with the company sponsoring the plan and can benefit from this company's resources and processes through outsourcing agreements.

3 Implications of different fee structures for individuals and providers

This chapter analyses the implications of different fee structures on asset-backed pension arrangements for individuals and providers. It models different fee structures at the individual and aggregate levels, and assesses how they affect the assets accumulated by individuals and the revenues collected by providers. A sensitivity analysis shows the impact of various parameters. The chapter also looks at the impact for providers of a transition from a contribution-based fee to an asset-based fee.

A first step to have better comparable indicators on fees across countries is to understand the different implications of different fee structures. Indeed, comparing fees charged to members of asset-backed pension plans across countries is complex. Several factors explain this. Indeed, providers of asset-backed pension arrangements can use different fee structures; fees collected vary according to the size and maturity of the arrangement, as well as the types of services provided by the arrangement; and indirect costs may not be reflected in the fees charged. Better understanding the different implications of various fee structures could be, therefore, a first step in improving indicators for cross-country comparisons.

This chapter analyses the implications of different fee structures on asset-backed pension arrangements for individuals and providers. It models different fee structures and calculates different indicators showing the effects on individuals, through the assets accumulated and the net return achieved, and providers, through fees collected, to assess their implications.

The analysis shows that different fee structures may affect individuals and providers differently. Fees reduce the level of assets accumulated at retirement. For example, a 1% asset-based fee reduces total assets accumulated at retirement by 20.5% relative to a situation without fees, after 40 years of contributions and under certain assumptions described later. There are other fee structures that may have the same impact on individuals as the 1% asset-based fee but may not be neutral for providers. For example, providers may have an incentive to levy fees on assets or on returns rather than on contributions, as they would collect more fees for each individual by the end of the accumulation period. At the aggregate level, a contribution-based fee is more interesting for providers when starting a new asset-backed pension arrangement. They may transition later to an asset-based fee to increase fee collection. Performance fees may help to align the interest of providers and individuals. However, performance fee structures that do not treat positive and negative performance in a symmetrical way may induce providers to boost the volatility of their investment portfolio in order to increase fee collection.

This chapter is structured as follows. Section 3.1 provides the methodology and presents the indicators used to assess the impact of different fee structures on individuals and providers. Section 3.2 then calculates the indicators for different fee structures making the individual neutral in terms of assets accumulated at retirement, assuming a world without uncertainty. Section 3.2 also conducts a sensitivity analysis. Section 3.3 generalises the results in a world of uncertainty by introducing stochastic variables. This provides the opportunity to study different performance fee structures and to assess the impact of return volatility on the indicators. Section 3.4 generalises the results of the Section 3.2 at the aggregate level and Section 3.5 concludes. The annex provides a description of the model used in Section 3.2.

3.1. Methodology and indicators

The analysis considers different fee structures. Han and Stanko (2018[1]) present the fee structures used by providers of asset-backed pension arrangements in IOPS and OECD countries. Fees can be charged on contributions (or equivalently salaries), assets, or investment returns/performance.[1] Combining different arrangements is also frequent, in particular charging on contributions and assets, or charging on assets and returns/performance. The analysis does not consider fixed fees and one-off fees (e.g. exit fees paid upon changing provider).[2]

The model first considers the effect of fees on the retirement savings of an individual based on certain deterministic variables (Section 3.2).[3] The individual is assumed to join a defined contribution pension plan at age 25 and to contribute 10% of earnings until age 64. Earnings grow in line with a constant productivity growth and inflation. Contributions are invested in a fixed-portfolio strategy[4] and earn a constant nominal rate of return.[5] The provider charges fees on an annual basis according to different fee structures.[6] At the end of the accumulation period, the individual takes a lump sum, so no more fees are due to the provider.

The model is later generalised in two ways. First, the variables are made stochastic, thereby reflecting the uncertainty over their values (Section 3.3). The model generates 10 000 Monte Carlo simulations. Inflation, productivity growth and rates of return are drawn from normal distributions with moments determined by historical data. In each simulation, the individual is randomly assigned to one of three different real earnings growth paths and may suffer spells of unemployment.[7]

Second, the analysis considers several cohorts of individuals instead of just one individual (Section 3.4, aggregate model). It uses the same parameter values as in the deterministic model. Each single-year age cohort has the same size, and all the individuals of a given cohort have the same level of earnings in each year. Contributions represent a constant share of GDP. Fees collected by the provider are aggregated across the different cohorts of savers in each year.

The analysis uses three indicators to measure the implications of different fee structures for individuals and providers:

- Charge ratio: It is the reduction in the assets accumulated at retirement because of the fees levied (i.e. one minus the ratio of the accumulated assets net of charges to the accumulated assets without charges).
- Reduction in yield: It is the reduction in the rate of return due to the charges levied. For example, if the gross rate of return is 5%, a reduction in yield of 1% means that the fee structure produces the same asset accumulation as a portfolio without fees reaching a rate of return of 4% ($\frac{1+5\%}{1+1\%} - 1$).
- Fees collected: It is the total amount of fees collected by the provider on the different flows over the accumulation period, as a percentage of the total contributions made. For the aggregate model, it is the total amount of fees collected by the provider on the different flows across the different cohorts of savers, as a percentage of GDP.

3.2. Implications of different fee structures at the individual level in a world without uncertainty

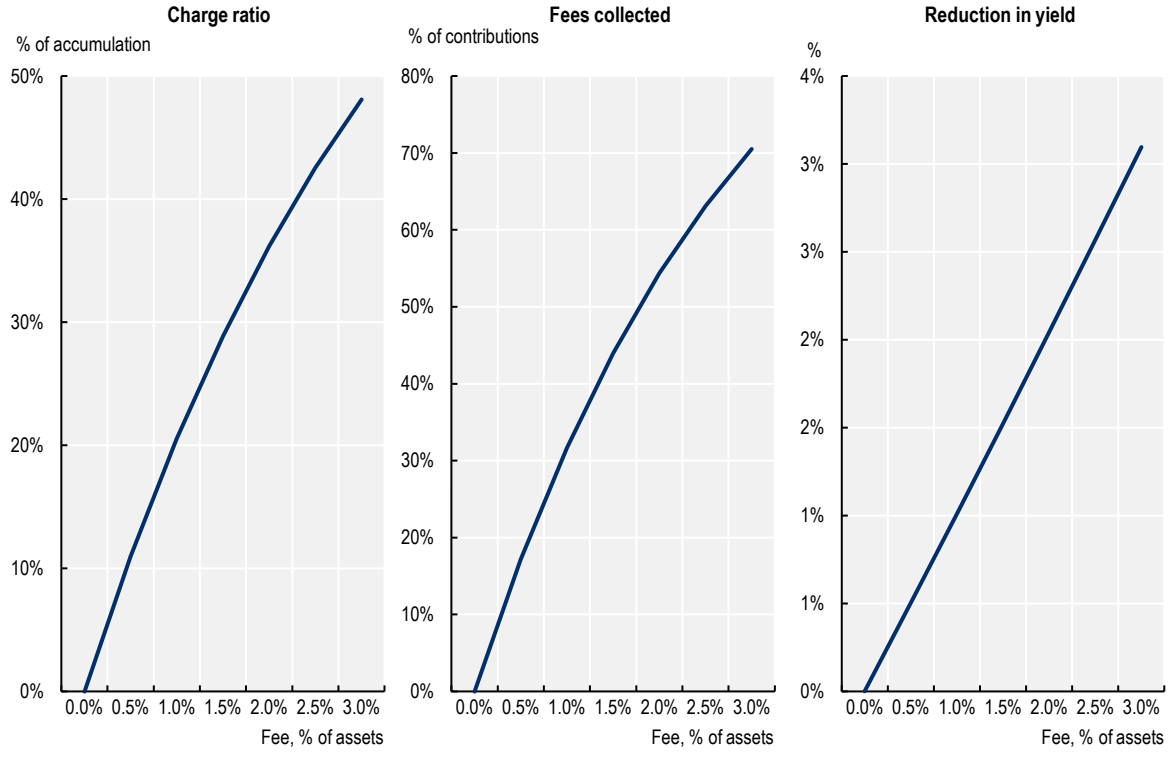
This section considers the implications of different fee structures for individuals and providers, when looking at one saver with deterministic characteristics over the course of the accumulation phase. It provides the value of different indicators (charge ratio, reduction in yield and fees collected) for the asset-based fee structure, and for different fee structures making the individual neutral, i.e. producing the same charge ratio. The section then analyses how the indicators vary when changing different parameters.

3.2.1. Asset-based fees

The analysis focuses first on the asset-based fee, which is the most common fee structure across OECD countries (OECD, 2019[2]). Under this fee structure, the provider of the asset-backed pension arrangement calculates fees in each period as a percentage of the total assets under management.

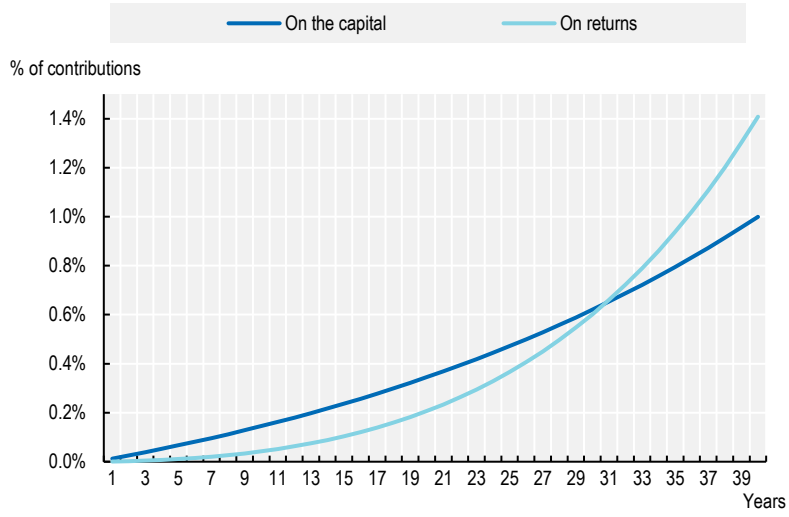
Increasing the fee rate of the asset-based fee structure increases the cost to the individual, in terms of lower assets accumulated at retirement and average return, and the revenues of the provider. However, the relationship is linear only for the reduction in yield indicator. For example, Figure 3.1 shows that the charge ratio for a 1% asset-based fee is 20.5%, meaning that the individual suffers a reduction of 20.5% in the total assets accumulated at retirement compared to a situation without fees. For an asset-based fee of 2%, the charge ratio is 36.2% (multiplied by a factor 1.76) and for an asset-based fee of 3%, the charge ratio is 48.1% (multiplied by a factor 1.33). For the 1% asset-based fee, the fees collected by the provider correspond to 31.7% of the contributions made and the reduction in yield is 1%.

Figure 3.1. Charge ratio, fees collected and reduction in yield, according to the fee rate of the asset-based fee structure



With an asset-based fee, a significant part of the total fees collected come from charging the capital. The asset-based fee is calculated from the stock of assets at the end of each year. This stock of assets results from the sum of contributions paid up to that point (the capital) and the returns obtained on these contributions. Figure 3.2 shows the yearly fees collected during the accumulation phase for a 1% asset-based fee broken down between the part collected on the capital and the part collected on returns. At the beginning of the accumulation phase, most of the fees are collected on the capital. Over time, the returns grow exponentially due to the compound interest, so that more fees are collected on returns than on the capital after around 30 years. On aggregate, 51.6% of all the fees collected by the end of the accumulation phase have been collected on the capital. It is worth noting that for a 40-year contribution period, the first contribution gets charged 40 times (so 40% with a 1% asset-based fee), while the last one is only charged once.

Figure 3.2. Decomposition of the fees collected for a 1% asset-based fee



3.2.2. Fee structures making the individual neutral

Different fee structures can result in the same charge ratio, making the individual neutral in terms of the total assets accumulated at retirement. Table 3.1 presents different fee structures producing the same charge ratio under the baseline assumptions. The analysis identifies four different fee structures equivalent to the 1% asset-based fee. These are a 20.5% fee on contributions, an 18.6% fee on returns, a mixed fee on contributions (10.7%) and assets (0.5%), and a mixed fee on assets (0.5%) and returns (9.3%).[8 9] The five fee structures have a charge ratio of 20.5% (i.e. the individual loses 20.5% of total assets accumulated at retirement compared to a situation without fees) and a reduction in yield of 1%. It is noteworthy that a 20.5% fee on contributions produces a charge ratio of the same value, and fees collected obviously also correspond to 20.5% of total contributions.[10]

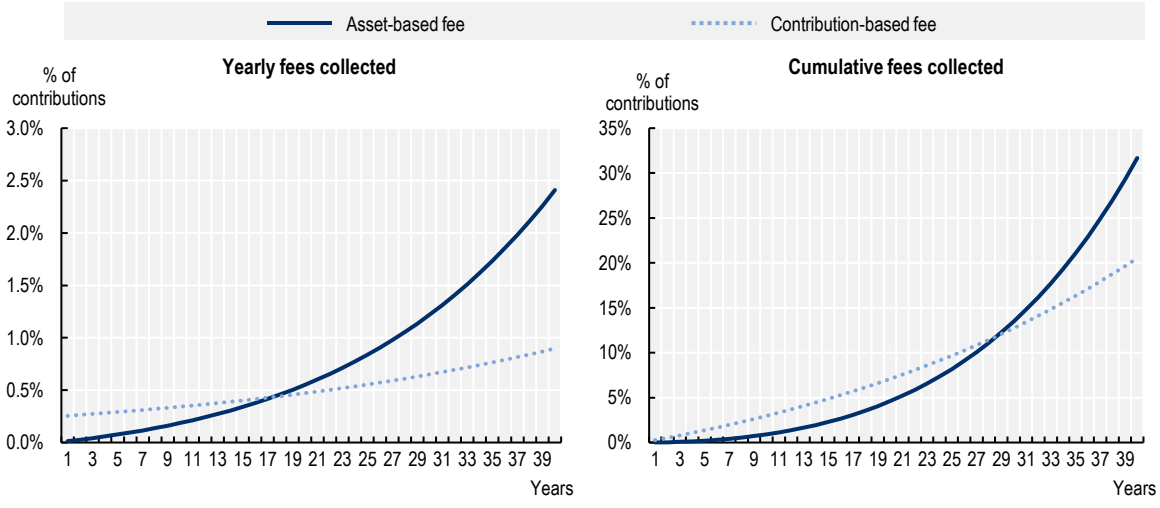
Table 3.1. Fee structures resulting in the same charge ratio as the 1% asset-based fee

Fee structure	Fee	Charge ratio	Reduction in yield	Fees collected
Fee charged on assets	1%	20.5%	1%	31.7%
Fee charged on contributions	20.5%	20.5%	1%	20.5%
Fee charged on returns	18.6%	20.5%	1%	31.7%
Fee charged on contributions and assets	10.7% on contributions and 0.5% on assets	20.5%	1%	26.1%
Fee charged on assets and returns	0.5% on assets and 9.3% on returns	20.5%	1%	31.7%

However, equivalent fee structures for the individual are not necessarily neutral for the provider. The provider collects more fees when these are based on assets or returns (31.7% of total contributions) than when they are based on contributions (20.5%). A mixed fee structure charging on both contributions and assets falls in-between (26.1%). The provider is neutral between charging fees on assets only, on returns only, or mixing fees on assets and fees on returns. Therefore, the provider has an incentive to charge fees on assets or on returns rather than on contributions, for a given charge ratio. The fact that a contribution-based fee takes away part of the contributions for investing explains this. Reversely, if the provider targets a certain level of fee revenues, the individual will be better off with fee structures based on assets or on returns. Indeed, a 31.7% charge on contributions is necessary to produce the same fee collection for the provider as a 1% asset-based fee, but this results in a charge ratio of 31.7%.[11]

A contribution-based fee is front-loaded, while an asset-based fee is back-loaded. Figure 3.3 shows that a provider collects more fees at the beginning of the accumulation phase with a contribution-based fee, as compared to an asset-based fee producing the same charge ratio.[12] Over time, however, the situation reverses, because assets grow faster than contributions. If the individual contributes during at least 29 years, the provider is better off with an asset-based fee because the cumulative amount of fees collected is larger.

Figure 3.3. Time profile of yearly and cumulative fees collected for two equivalent fee structures



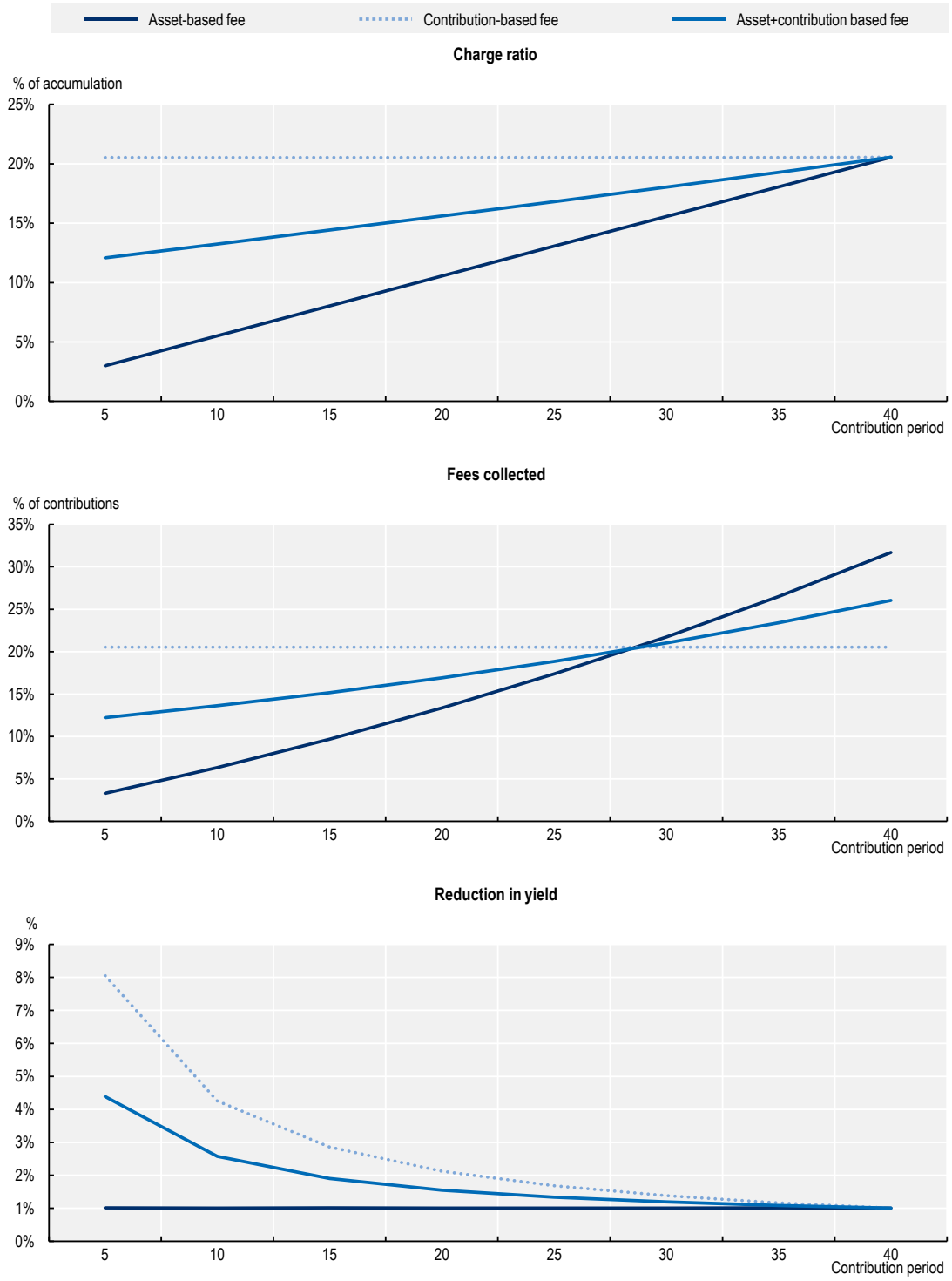
Note: The figure compares the time profile of fees collected for the 1% asset-based fee and the 20.5% contribution-based fee, which are equivalent for the individual.

Changing some of the parameters changes the results. Therefore, the following sub-sections provide a sensitivity analysis, looking at the impact on the different indicators of the number of years of contributions (length of the contribution period and contribution gaps), the amount contributed (contribution rate and wage growth), and the investment returns (level of returns and time profile of returns). The sensitivity analysis considers the fee structures in Table 3.1, which produce the same charge ratio for the baseline scenario.

3.2.3. Impact of the length of the contribution period

The length of the contribution period has a distinct impact on the charge ratio, the fees collected and the reduction in yield, depending on the fee structure. Individuals join an asset-backed pension plan at different stages and not necessarily immediately when starting their career, in particular in voluntary systems. The analysis here looks at the impact of the length of contribution by assuming that the individual joins the plan at different ages, between 25 and 60, thereby reducing the length of the contribution period from 40 years to a minimum of five years. Figure 3.4 shows the impact of the length of the contribution period on the charge ratio, the fees collected and the reduction in yield for the fee structures presented in Table 3.1, which produce the same charge ratio for a 40-year contribution period.

Figure 3.4. Charge ratio, fees collected and reduction in yield for different fee structures according to the length of the contribution period



Note: The figure compares the three indicators for the 1% asset-based fee, the 20.5% contribution-based fee and the mixed fee structure charging on assets (0.5%) and contributions (10.7%), which are equivalent for the individual for a 40-year contribution period. The 18.6% return-based fee and the mixed fee structure charging on assets (0.5%) and returns (9.3%) are not shown as they provide the same results as the asset-based fee.

The length of the contribution period does not affect the charge ratio and the fees collected for the contribution-based fee. Figure 3.4 shows that both indicators remain equal to 20.5% irrespective of the length of the contribution period. In absolute terms, the level of assets accumulated at retirement and the level of fees collected decline for shorter contribution periods, but proportionally to the decline of assets in the absence of fees and to the decline of contributions. The indicators therefore remain constant for all durations of the contribution period for the contribution-based fee.

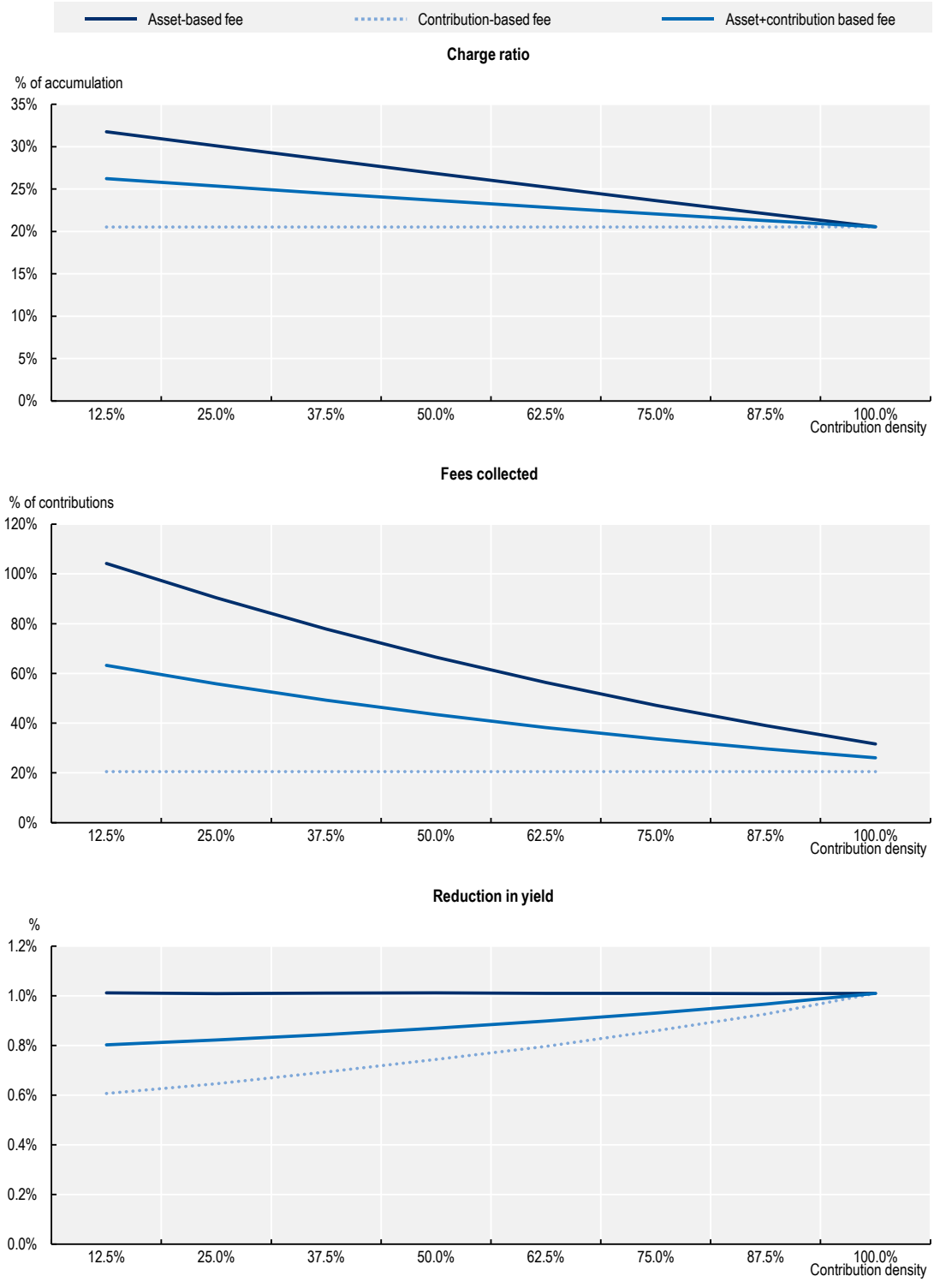
By contrast, longer contribution periods increase linearly the charge ratio and the fees collected for the asset-based fee, the return-based fee and the mixed fee structures. For example, the charge ratio increases by 0.5 percentage point for each additional year of contribution with the 1% asset-based fee. The return-based fee and the mixed fee structure charging on assets and returns produce the same results as the asset-based fee (see the footnote below the figure). Due to the compound interest, the level of assets does not increase linearly during the accumulation phase. The longer is the contribution period, the larger becomes the basis to calculate asset-based fees and return-based fees, and the greater is the impact on the assets accumulated and, on the fees collected. A 1% asset-based fee and a 20.5% contribution-based fee would produce similar revenues for the provider for an individual contributing for 28 years, from 37 to 64 years old (middle panel of Figure 3.4), but that individual would be better off with the asset-based fee (14.6% charge ratio).

Looking at the reduction in yield provides a different picture. The reduction in yield remains constant (at 1%) for the asset-based fee irrespective of the length of the contribution period. It is also the case for the return-based fee and the mixed fee structure charging on assets and returns as they both produce the same results as the asset-based fee. However, the bottom panel of Figure 3.4 shows that when the fee structure includes a charge on contributions, shorter contribution periods increase the reduction in yield. At the extreme, the 20.5% contribution-based fee results in a negative net rate of return for very short contribution periods. For example, for a contribution period of five years, the contribution-based fee produces a reduction in yield of 8.1%, which is larger than the gross rate of return assumed under the baseline assumptions (5.7%). This means that the contribution-based fee results in the same level of assets accumulated at retirement as a portfolio without fees reaching a -2.2% rate of return. The reduction in yield penalises the fact that the charge ratio is still at 20.5% for short contribution periods. It reflects the fact that the individual could get a lower charge ratio with alternative fee structures based on asset charges, as shown in the bottom panel of Figure 3.4.

3.2.4. Impact of contribution gaps

Gaps in the contribution history also affect the charge ratio, the fees collected and the reduction in yield differently according to the fee structure. Once individuals have joined an asset-backed pension plan, sometimes they may stop contributing to it for a while. Gaps in the contribution history may arise from periods of unemployment, inactivity, or informal work. When contributions stop, fees on contributions also stop, while fees on assets and returns continue to be charged. To study the effect of contribution gaps on different fee structures, the analysis assumes here that the individual joins the plan at age 25 but stops contributing before age 64, while leaving the assets invested in the plan until retirement age. The individual is a member of the plan for 40 years, but does not contribute all the years. This provides a range of contribution densities, with 50% meaning that the individual contributed for 20 years (from age 25 to 44) and left the assets in the plan without contributing for another 20 years (from age 45 to 64). Figure 3.5 shows the impact of contribution gaps on the charge ratio, the fees collected and the reduction in yield for the fee structures presented in Table 3.1, which are equivalent for the individual for a 100% contribution density (i.e. no contribution gap).

Figure 3.5. Charge ratio, fees collected and reduction in yield for different fee structures according to the contribution density



Note: The figure compares the three indicators for the 1% asset-based fee, the 20.5% contribution-based fee and the mixed fee structure charging on assets (0.5%) and contributions (10.7%), which are equivalent for the individual for a 100% contribution density. The 18.6% return-based fee and the mixed fee structure charging on assets (0.5%) and returns (9.3%) are not shown as they provide the same results as the asset-based fee.

Shorter contribution gaps reduce the charge ratio and the fees collected for fee structures charging on assets and returns. This is in contrast with the situation where the length of the contribution period is increased by joining the plan earlier. Figure 3.5 shows that the charge ratio declines linearly as the contribution density increases for the asset-based fee and the mixed fee structure charging on assets and contributions. The decline is non-linear for the fees collected. It is also the case for the return-based fee and the mixed fee structure charging on assets and returns, as they produce the same results as the asset-based fee (see the footnote below the figure). With fees based on assets and returns, the provider collects fees even when the individual does not contribute. The longer is the contribution gap (i.e. lower contribution density), the more the level of assets accumulated at retirement declines in proportion, compared to a situation without fees. It also means that the provider collects more fees as a share of contributions. By contrast, the two indicators are not sensitive to the contribution density for the contribution-based fee because fees are not charged when contributions are not paid, so everything adjusts in proportion.

The situation is reversed again when looking at the reduction in yield (bottom panel of Figure 3.5). The reduction in yield is not sensitive to the contribution density for the asset-based fee, the return-based fee and the mixed fee structure charging on assets and returns. It increases as the contribution density improves for fee structures charging on contributions. For lower contribution densities, the impact of the contribution-based fee on the rate of return gets lower, because fees are collected in fewer years in comparison to the years during which contributions earn a return.

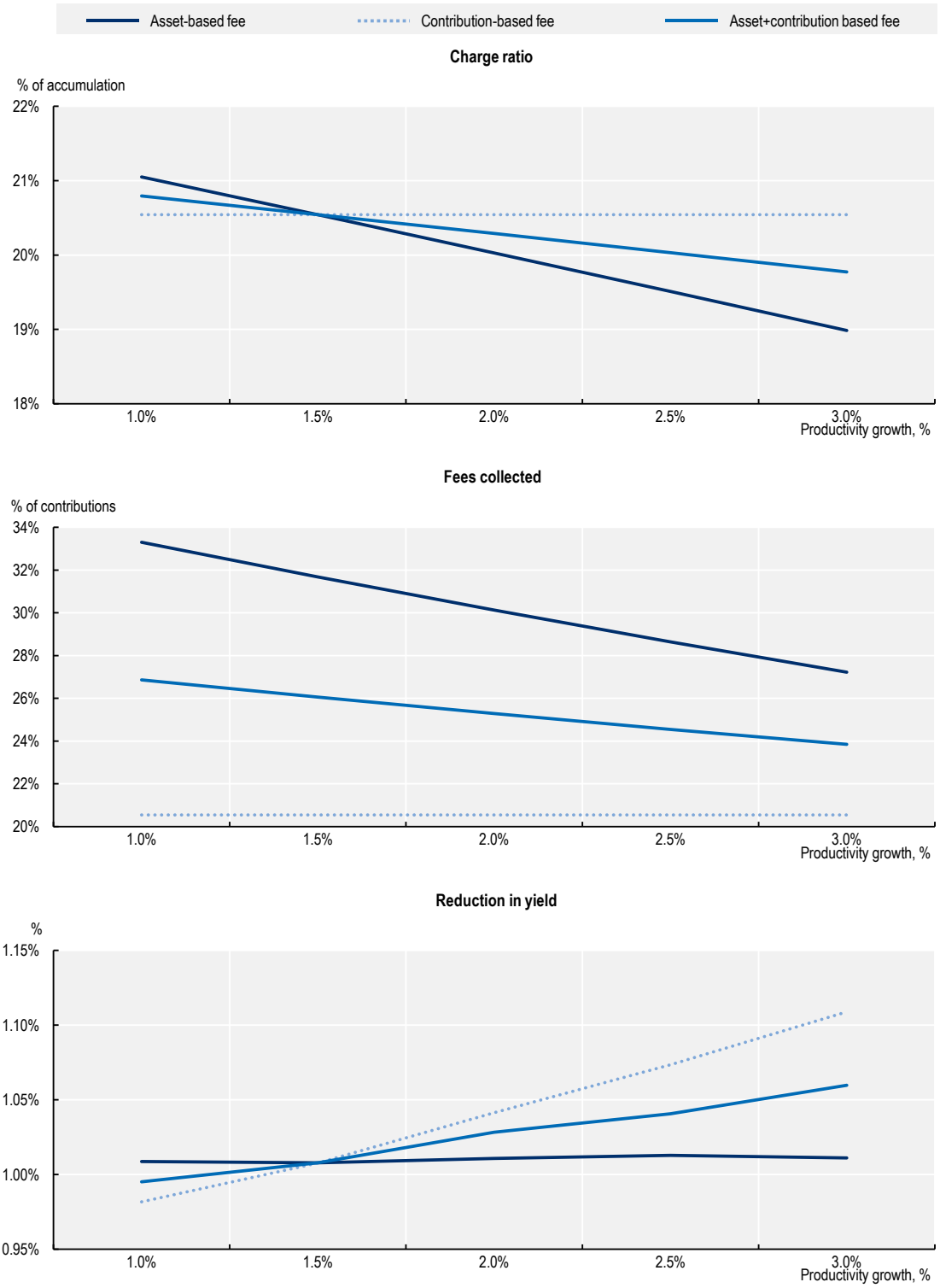
3.2.5. Impact of the contribution rate

The contribution rate has no impact on the three indicators for all the fee structures considered in Table 3.1. This is because all the parameters (contributions, asset accumulated and investment returns) adjust in the same proportions when the contribution rate varies, irrespective of the fee structure. Given that the indicators are relative measures, they keep the same value as in Table 3.1 for different contribution rates.[13]

3.2.6. Impact of the wage growth

Wage growth also influences the level of contributions, as does the contribution rate. Two parameters, productivity growth and inflation, determine wage growth in the model used. This section illustrates the impact of the productivity growth rate, but the impact of inflation is similar. Figure 3.6 shows the impact of the productivity growth rate on the charge ratio, the fees collected and the reduction in yield for the fee structures presented in Table 3.1, which are equivalent for the individual for a 1.5% productivity growth rate.

Figure 3.6. Charge ratio, fees collected and reduction in yield for different fee structures according to the productivity growth rate



Note: The figure compares the three indicators for the 1% asset-based fee, the 20.5% contribution-based fee and the mixed fee structure charging on assets (0.5%) and contributions (10.7%), which are equivalent for the individual for a 1.5% productivity growth rate. The 18.6% return-based fee and the mixed fee structure charging on assets (0.5%) and returns (9.3%) are not shown as they provide the same results as the asset-based fee.

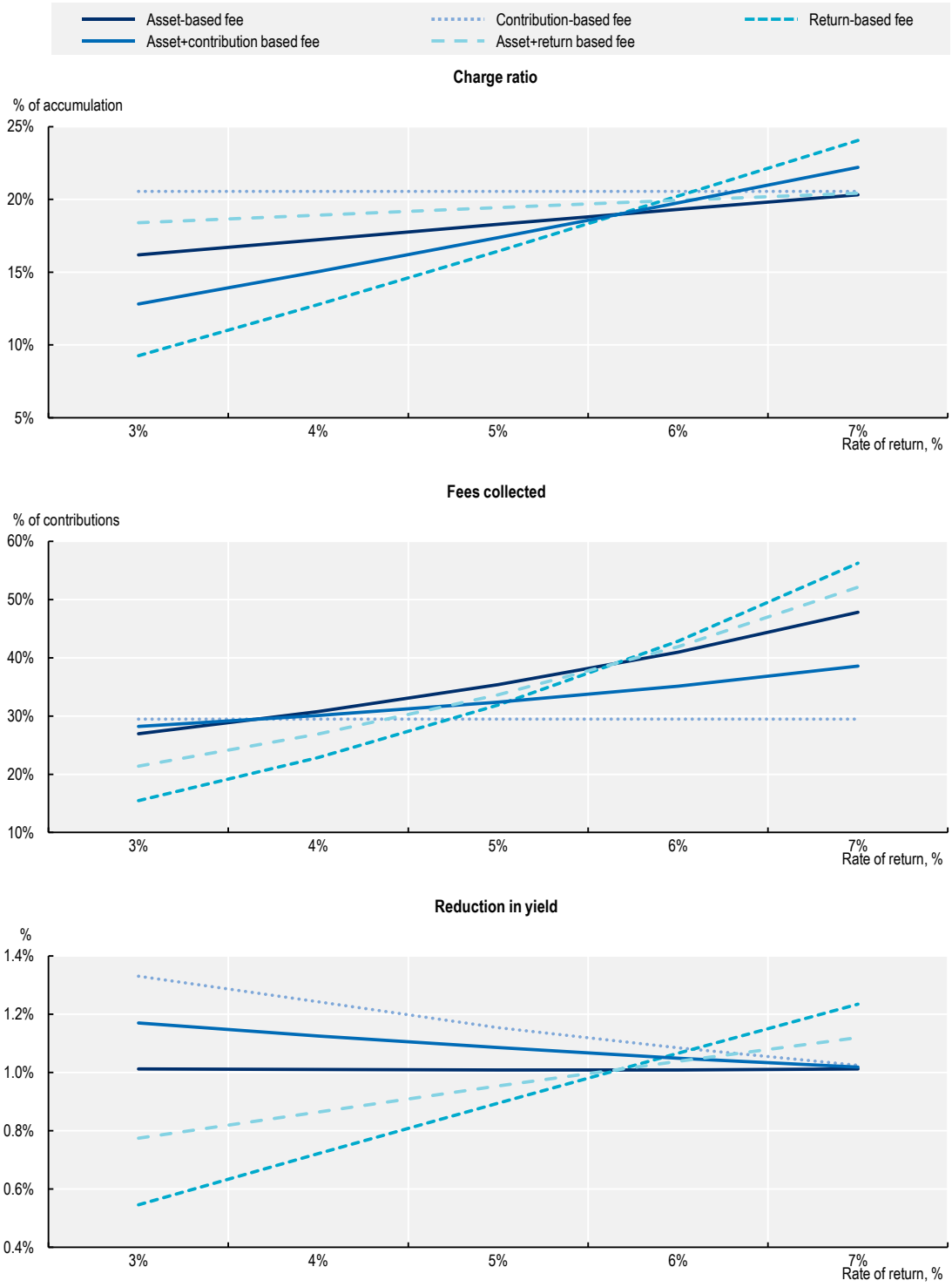
The charge ratio and the fees collected are smaller with fee structures charging on assets or returns for individuals with a higher wage growth, everything else equal. Both indicators are insensitive to the productivity growth rate for the fee structure charging on contributions only (Figure 3.6). For the 1% asset-based fee, a 1% increase in the productivity growth rate reduces the charge ratio by 1 percentage point. Because of the compounding effect of productivity growth on wages, an increase in the productivity growth rate increases contributions non-linearly, with larger impacts towards the end of the accumulation phase. This implies that the effect on assets and on fees on assets/returns is felt more strongly towards the end of the accumulation period too. In relative terms, fees on assets/returns have therefore a lower impact on the assets accumulated at retirement, thereby reducing the charge ratio.

The reversed situation is observed for the reduction in yield. As the productivity growth rate increases, the impact of contribution-based fees on the rate of return gets larger (bottom panel of Figure 3.6).

3.2.7. Impact of the rate of return

The fee structure most sensitive to the rate of return is the one charging on investment returns. Figure 3.7 shows that the charge ratio, the fees collected and the reduction in yield increase for this fee structure when the rate of return is higher. Because of the compound interest, the higher is the rate of return, the larger is the impact on assets and on investment returns. With fee structures charging on assets or on returns, providers of asset-backed pension arrangements therefore have an incentive to reach the highest possible performance because they will collect more fees. The individual is also better off with a higher performance, as the assets accumulated at retirement will be higher, irrespective of the fee structure. However, with fee structures charging on assets or on returns, the charge ratio increases with the rate of return, because the fees collected increase by a larger proportion than the assets.

Figure 3.7. Charge ratio, fees collected and reduction in yield for different fee structures according to the rate of return



Note: The figure compares the three indicators for the 1% asset-based fee, the 20.5% contribution-based fee, the 18.6% return-based fee, the mixed fee structure charging on assets (0.5%) and contributions (10.7%), and the mixed fee structure charging on assets (0.5%) and returns (9.3%), which are equivalent for the individual for a 5.7% rate of return.

3.2.8. Impact of the time profile of the rate of return

Changing the time profile of the rate of return may affect fees. Instead of assuming a fixed portfolio investing 60% of the assets in equities throughout the accumulation phase and reaching a constant rate of return, one can look at other types of investment strategies. For example, with life-cycle investment strategies, the share of assets invested in risky assets, such as equities, is larger at the beginning of the accumulation phase and declines as the individual gets closer to retirement. This implies that the rate of return may decline over time as well.

The time profile of the rate of return has a small impact on the indicators. The analysis considers three life-cycle investment strategies with the same age-weighted average equity exposure as the baseline fixed-portfolio strategy (and therefore the same age-weighted average return). The first one reduces the equity exposure linearly with age; the second one keeps the equity exposure constant during the first 20 years and then reduces it linearly to zero over the next 20 years; and the third one keeps the equity exposure constant during the first 30 years and then reduces it linearly to zero over the next 10 years. The impact on the charge ratio, the fees collected and the reduction in yield is larger with the second life-cycle investment strategy but remains minor. With this investment strategy, the equity exposure (and the rate of return) is larger at the beginning of the accumulation phase. For the 1% asset-based fee, this leads to an increase of the charge ratio to 20.8%, of the fees collected to 32.5% and of the reduction in yield to 1.1% (from 20.5%, 31.7% and 1.0% with the fixed-portfolio strategy, respectively).

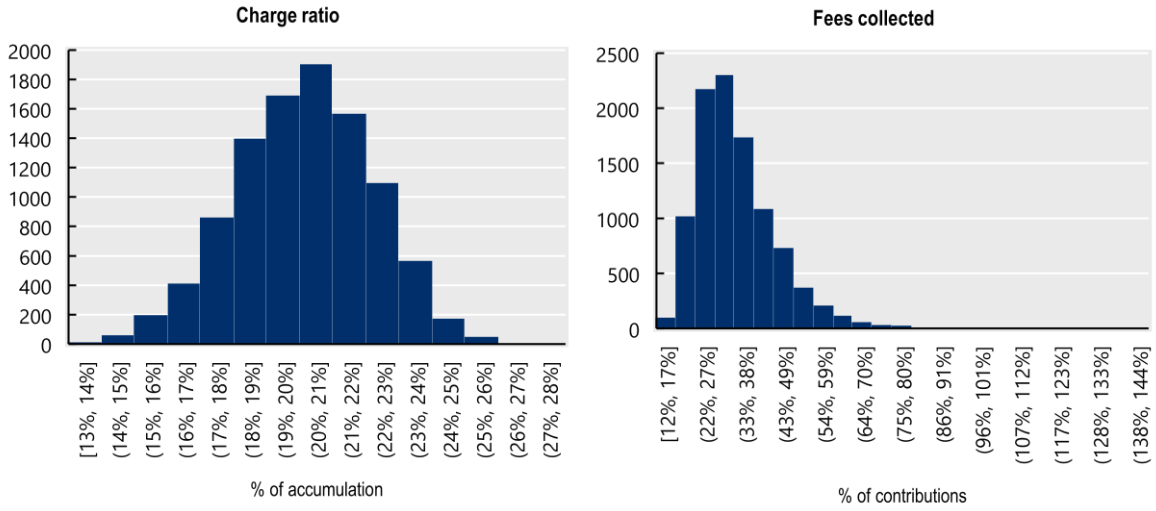
3.3. Implications of different fee structures at the individual level when introducing uncertainty

This section generalises the analysis in the previous section by introducing uncertainty. Producing 10 000 Monte Carlo simulations with stochastic parameters allows to consider uncertainty. This section first analyses the impact of introducing uncertainty for the different fee structures. The analysis focuses on two indicators, the charge ratio and the fees collected, as the gross and net returns are now stochastic, complicating the calculation of the reduction in yield. The introduction of uncertainty also allows to study additional fee structures like performance fees and to assess the impact of return volatility on the indicators.

3.3.1. Impact of introducing uncertainty

For the 1% asset-based fee, the distribution of the charge ratio resembles a normal distribution, while the distribution of the fees collected is skewed to the right (Figure 3.8). The median (20.2%) and the average (20.1%) charge ratios are very close to each other. For the fees collected, the average (33.3%) is greater than the median (31.2%). This means that fees collected can reach, in certain scenarios, extreme values.

Figure 3.8. Distribution of the charge ratio and the fees collected for the 1% asset-based fee



The analysis identifies four different fee structures that produce the same *average* charge ratio as the 1% asset-based fee in a world of uncertainty. The fee structures providing the same average charge ratio of 20.1% are a 20.1% fee on contributions, a 14.6% fee on returns, a mixed fee on contributions (10.5%) and assets (0.5%), and a mixed fee on assets (0.5%) and returns (7.3%).

For fee structures based on charges on contributions, the fee rates are very similar in a world with and without uncertainty. For example, the 1% asset-based fee is equivalent to a 20.1% fee on contribution in a world of uncertainty, and to a 20.5% fee on contribution in a world without uncertainty. Moreover, in line with the results shown in Section 3.2, the contribution-based fee is not sensitive to the stochastic variables (i.e. contribution length and density, wage growth and rates of return). The charge ratio and the fees collected are equal to 20.1% for all the simulations (Table 3.2).

Table 3.2. Distribution of the charge ratio and the fees collected for equivalent fee structures

	5th percentile	1st quartile	Median	Mean	3rd quartile	95th percentile	Probability > fee on assets
	Charge ratio, percentage of accumulation						
Fee charged on assets	16.65%	18.75%	20.20%	20.14%	21.59%	23.38%	
Fee charged on contributions	20.14%	20.14%	20.14%	20.14%	20.14%	20.14%	48.92%
Fee charged on returns	13.01%	17.00%	20.00%	20.14%	23.12%	27.55%	48.45%
Fee charged on contributions and assets	18.41%	19.44%	20.16%	20.14%	20.86%	21.75%	48.69%
Fee charged on assets and returns	15.03%	17.97%	20.07%	20.14%	22.23%	25.27%	47.89%
	Fees collected, percentage of contributions						
Fee charged on assets	19.80%	25.70%	31.20%	33.32%	38.63%	53.34%	
Fee charged on contributions	20.14%	20.14%	20.14%	20.14%	20.14%	20.14%	5.68%
Fee charged on returns	15.90%	24.10%	31.92%	35.24%	43.19%	64.70%	53.88%
Fee charged on contributions and assets	19.95%	22.85%	25.59%	26.66%	29.29%	36.64%	5.64%
Fee charged on assets and returns	18.07%	25.01%	31.64%	34.28%	40.75%	58.75%	53.42%

By contrast, the fee rates on returns equivalent to the asset-based fee are lower in a world of uncertainty. For example, the 1% asset-based fee is equivalent to a 14.6% return-based fee in a world of uncertainty, as opposed to a 18.6% return-based fee in a world without uncertainty. As seen in Figure 3.7, fee structures charging on investment returns are very sensitive to the rate of return. In a world of uncertainty, rates of return are volatile. Providers collect more fees when rates of return are higher, while they are not penalised when rates of return are negative (beyond the fact that they do not collect a fee). This implies that the fee rate does not need to be as high in a world of uncertainty to reach the same average charge ratio.[14]

The fee structure charging on returns produces the most dispersed distributions for the charge ratio and the fees collected. The standard deviation of the distribution of the charge ratio for example, is null for the contribution-based fee, around 1% for the mixed fee on assets and contributions, 2% for the asset-based fee, 3% for the fee charging on assets and returns, and 4% for the return-based fee. The return-based fee is particularly sensitive to the rate of return, as seen Figure 3.7. It results in skewed distributions with large positive values, especially for the fees collected. In 5% of the simulations, fees collected would reach 64.7% of total contributions or more.

Providers of asset-backed pension arrangements are better off with fee structures charging on assets and/or returns. Indeed, providers have significantly greater chances of larger fee collection with the asset-based fee, the return-based fee and the mixed fee structure charging on assets and returns. In less than 6% of the cases would fee structures charging on contributions produce a larger fee collection than the asset-based fee. When looking at the charge ratio, the analysis shows that individuals tend to be slightly better off with fee structures other than the asset-based fee, even though the five fee structures produce the same average charge ratio. Comparing the charge ratio produced by the different equivalent fee structures in each simulation shows that in less than half of the cases (between 48% and 49%), the 1% asset-based fee will produce a lower charge ratio than the other fee structures.

3.3.2. Performance fees

The stochastic model allows to study different forms of performance fees. Following OECD (2018[3]), the design of a performance fee depends on the following parameters:

- The fee base (i.e. is the fee calculated on investment income or on assets);
- The fee rate;
- The hurdle rate (i.e. the minimum return the portfolio must reach before a performance fee is levied);
- The measurement period (i.e. the length of time over which performance is calculated); and
- The use of a high-water mark (i.e. the last highest value that the portfolio has reached) to trigger the payment of a performance fee.

The mixed fee structure charging on assets and returns presented previously uses a performance fee with the investment income as the fee base, a fee rate of 7.3%, a hurdle rate of 0%, a measurement period of one year, and no high-water mark. The analysis considers five additional fee structures mixing an asset-based fee and a performance fee. They all use the same fee rates (i.e. 0.5% fee on assets and 7.3% fee on performance), but vary with respect to the other parameters for the performance fee:

- Fix hurdle rate: The performance fee is calculated based on the return in excess of 5%. No performance fees are paid if returns are below 5%.
- Variable hurdle rate: The performance fee is calculated based on the return in excess of a government bond return index. No performance fees are paid if returns are negative or below the index.
- High-water mark: The performance fee is calculated based on the return resulting from the increase in the unit value of the portfolio compared to the last highest unit value. No performance fees are paid if the unit value of the portfolio is smaller than the last highest unit value.
- Carry-over mechanism: The performance fee is calculated based on the difference between the return and a hurdle rate (either 0% or 5%). It can be positive or negative. If it is positive, 45% of the calculated performance fee is paid to the provider, while the rest is put into a reserve. If it is negative, the whole amount is put into the reserve. The following year, the newly calculated performance fee is added to the previous reserve. If that sum is positive, the same split applies to the sum between fee payment (45%) and reserve (55%). If the sum is negative, no performance fee is paid and the whole amount is put into the reserve.[15]

The five performance fee structures produce a lower charge ratio and lower fees collected than the performance fee with a 0% hurdle rate. This is simply because the performance fee is paid less often, as the portfolio needs to reach a higher rate of return before a performance fee is due. The average charge ratio varies from 12.7% for the carry-over mechanism combined with a fix hurdle rate, to 17.6% for the high-water mark (Table 3.3), as compared to 20.1% for the 0% hurdle rate (Table 3.2).

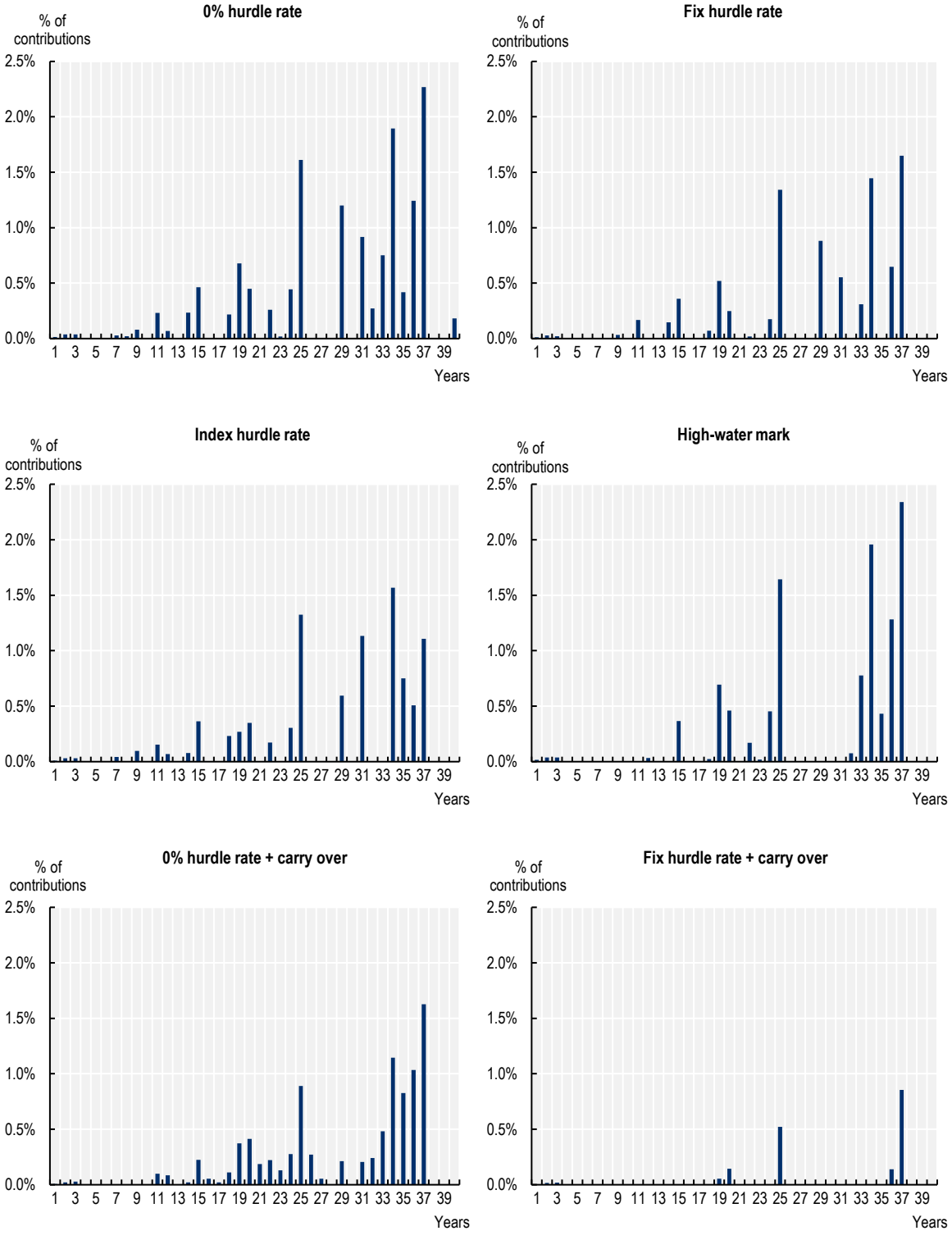
Table 3.3. Distribution of the charge ratio and the fees collected for different performance fee structures

	5th percentile	1st quartile	Median	Mean	3rd quartile	95th percentile
	Charge ratio, percentage of accumulation					
Fix hurdle rate	12.30%	14.66%	16.35%	16.44%	18.19%	20.71%
Variable hurdle rate	12.52%	14.92%	16.62%	16.70%	18.45%	21.00%
High-water mark	11.67%	15.06%	17.55%	17.57%	20.04%	23.53%
Carry-over	11.99%	15.06%	17.32%	17.36%	19.63%	22.85%

	5th percentile	1st quartile	Median	Mean	3rd quartile	95th percentile
Carry-over + fix hurdle rate	9.16%	10.88%	12.45%	12.68%	14.24%	16.89%
	Fees collected, percentage of contributions					
Fix hurdle rate	14.75%	20.42%	25.84%	28.13%	33.50%	48.35%
Variable hurdle rate	15.07%	20.77%	26.31%	28.52%	33.83%	48.93%
High-water mark	14.11%	21.21%	28.10%	30.64%	37.31%	55.24%
Carry-over	14.49%	21.43%	28.23%	30.88%	37.54%	55.64%
Carry-over + fix hurdle rate	10.80%	14.97%	19.73%	22.22%	26.86%	41.37%

Keeping part of the performance fees in reserves to cushion negative returns, i.e. the carry-over mechanism, reduces the total level of performance fees collected. The carry-over mechanism introduces a symmetrical treatment of performance fees because the provider has to compensate for any negative past performance before collecting a performance fee again. Figure 3.9 provides the time profile of performance fee collection over the 40-year accumulation period for different fee structures, for one simulation. One can assess the effect of the carry-over mechanism by comparing the charts with and without the mechanism for the 0% and the 5% hurdle rates. For a hurdle rate of 5%, the carry-over mechanism brings down the number of years with a performance fee collection from 19 to 8 (comparing the top-right and bottom-right charts). It also reduces the sum of performance fees collected from 8.6% to 1.8% of contributions. For a hurdle rate of 0%, the carry-over mechanism actually increases the number of years with a performance fee collection (from 26 to 28), but still reduces the sum of performance fees collected from 14.0% to 9.3% of contributions (comparing the top-left and bottom-left charts).

Figure 3.9. Illustration of performance fees collected for different fee structures for one simulation



Note: The figure compares the performance fees collected in one simulation for the different performance fee structures sharing the same fee rates (0.5% fee on assets and 7.3% fee on performance).

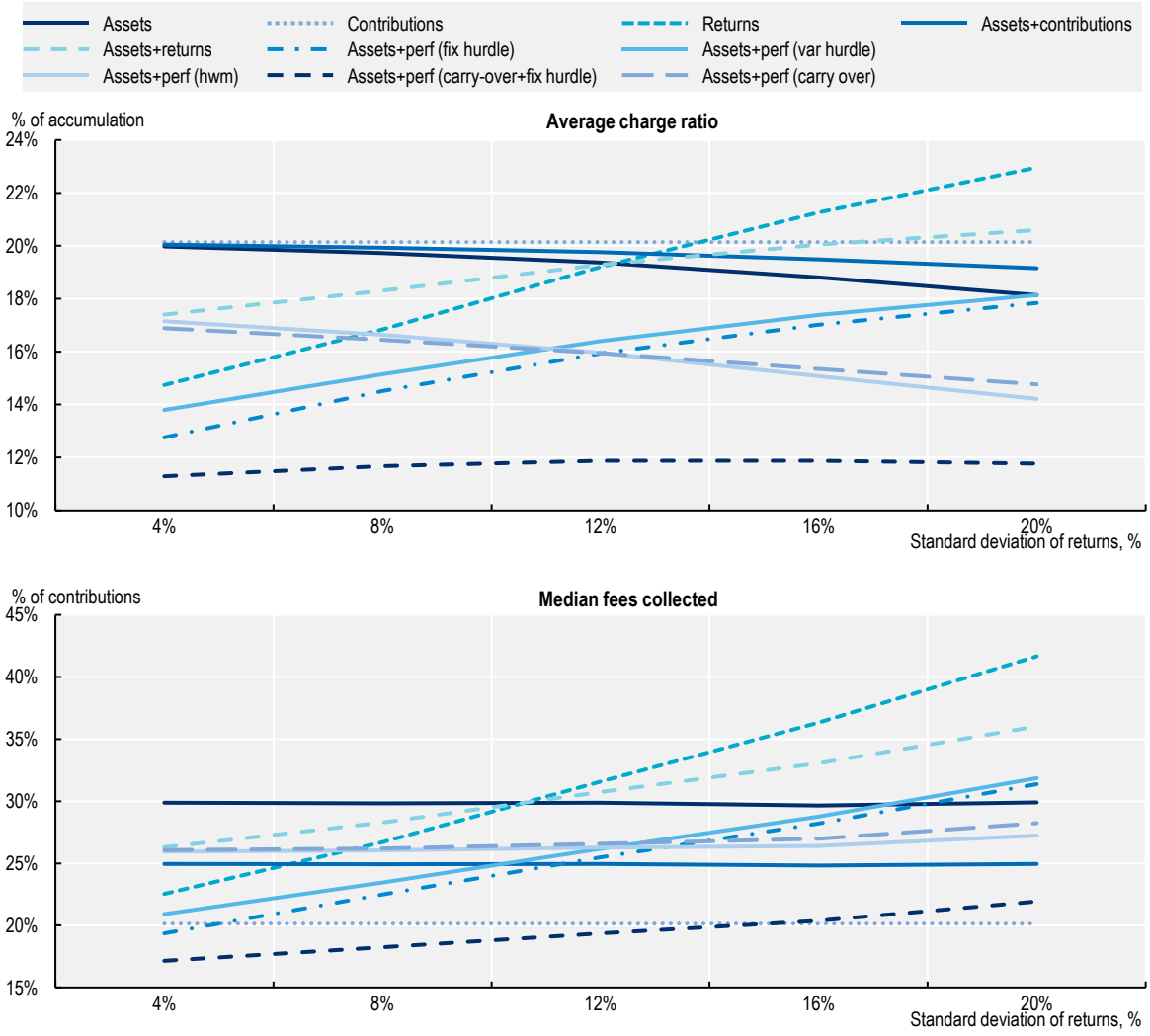
Conditioning the payment of performance fees to increasing the unit value of the portfolio compared to its last maximum, i.e. using a high-water mark, provides similar outcomes to the carry-over mechanism, but the latter allows to smooth performance fee collection. The high-water mark also requires providers to compensate for past losses before collecting performance fees, but the fee collection is more erratic. The two performance fee structures produce similar distributions for the charge ratio and the fees collected (Table 3.3). The main difference lies in the profile of fee collection. Figure 3.9 shows that performance fee collection with the carry-over mechanism (with a 0% hurdle rate) involves smaller amounts but more frequent than with the high-water mark. This is because part of the positive performance fees is put into a reserve, thereby smoothing out fee payments.

3.3.3. Impact of the volatility in the rate of return

Providers may prefer more volatile portfolios as higher volatility in the rate of return may increase fees collected. It is, therefore, interesting to analyse the sensitivity of the indicators to the volatility of the rate of return for different fee structures. For example, Dai, Merton and Rizova (2020[4]) use option pricing models to value performance fees and show that asset managers charging a performance fee with a fix hurdle rate collect more fees when the annualised return volatility increases. This provides an incentive for managers to boost the volatility of their investment portfolio in order to increase their revenue. To check whether this result holds with the model used herein, the study conducts two different sensitivity analyses. The first one considers that investment rates of return follow a normal distribution with mean 5% and standard deviation varying from 4% to 20%. The second sensitivity analysis makes the mean and standard deviation of the rates of return vary in tandem, as usually, an asset class with more volatile returns also has higher average returns.

Fee structures charging on investment returns indeed produce higher charge ratios and fees collected when the standard deviation of returns is larger. Figure 3.10 show that this is the case for fee structures charging on returns only, or mixing a fee on assets with a performance fee with a fix (0% or 5%) or variable hurdle rate. For these fee structures, a higher volatility of returns increases the upside potential of fee collection, without any consequences when returns go deeper into negative territory beyond the absence of fee collection. Therefore, individuals are worse-off when the volatility of returns is bigger because they have a higher charge ratio, while providers are better-off as they collect more fees.

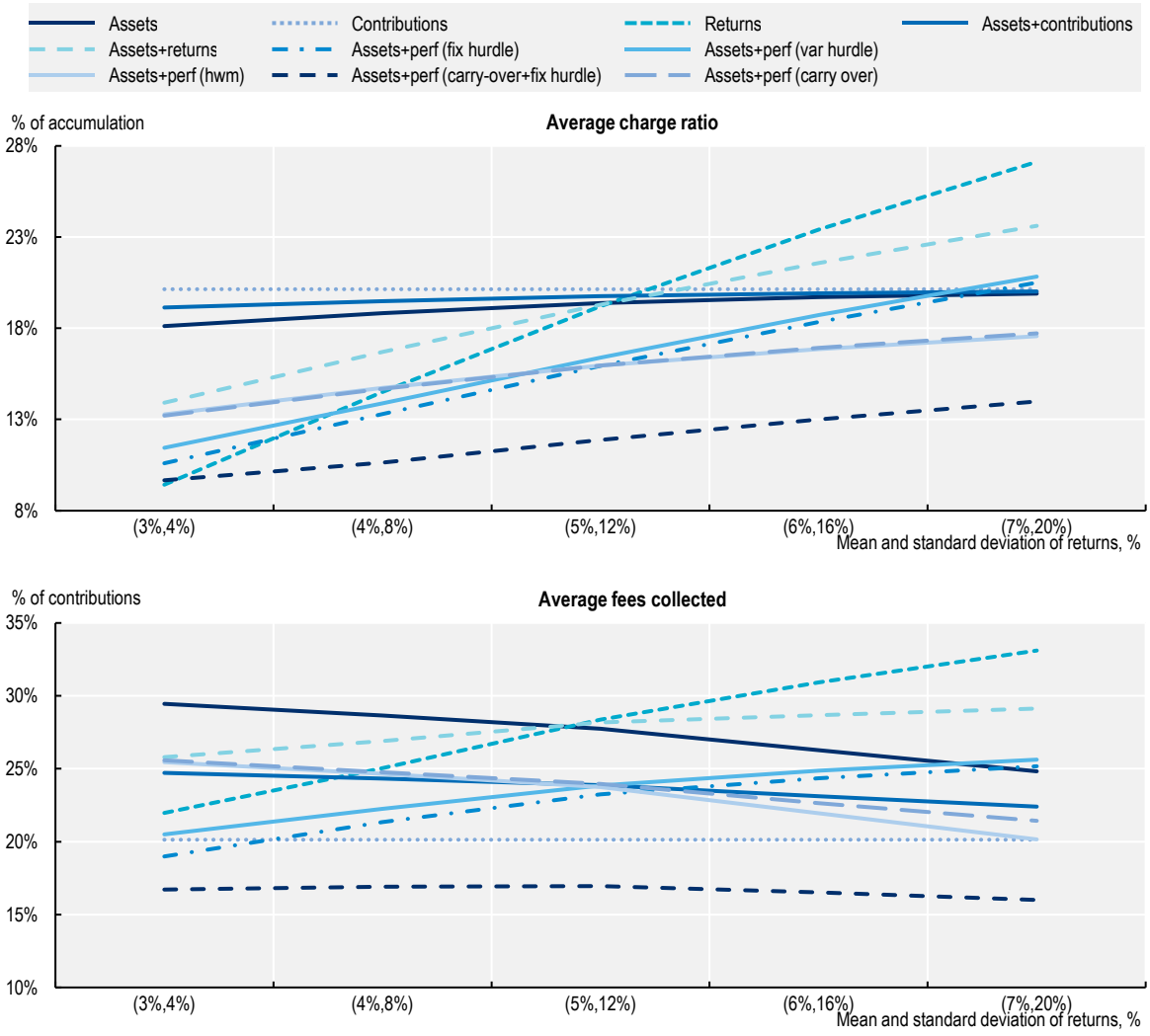
Figure 3.10. Charge ratio and fees collected for different fee structures according to the standard deviation of returns



Note: The figure compares the two indicators for the fee structures in Table 3.2 and Table 3.3, assuming that investment rates of return follow a normal distribution with mean 5%.

Treating negative and positive investment returns in a symmetrical way changes the impact of return volatility. Because of the symmetry implied between positive and negative performance with the carry-over mechanism and the high-water mark, a higher return volatility actually reduces the average charge ratio and the median fees collected (Figure 3.10).[16] This makes individuals better-off, but providers worse-off. This is because it takes time for providers before they can collect fees again after a negative return has occurred. However, when the volatility of returns increases in tandem with the mean (Figure 3.11), both fee structures produce a higher charge ratio and fees collected. This is in line with Figure 3.7, showing that, for fee structures charging on assets or on returns, higher rates of return increase the charge ratio and the fees collected. It remains true when this is coupled with a higher return volatility.

Figure 3.11. Charge ratio and fees collected for different fee structures according to the mean and standard deviation of returns



Note: The figure compares the two indicators for the fee structures in Table 3.2 and Table 3.3, assuming that investment rates of return follow a normal distribution with mean and standard deviation determined in tandem.

3.4. Implications of different fee structures for providers at the aggregate level

This section generalises the deterministic model for one individual of Section 3.2 to several cohorts of individuals. It looks at the fees collected by providers on aggregate over all individuals for the different fee structures presented in Table 3.1 that leave the individual neutral between them as they would have the same charge ratio. As the time profile of fee collection varies according to the fee structure, aggregate fees collected by providers may vary over time as well when combining different cohorts of savers at different stages of their accumulation phase. The analysis first looks at the situation of a maturing asset-backed pension arrangement, and then looks at the transition from a contribution-based fee to an asset-based fee.

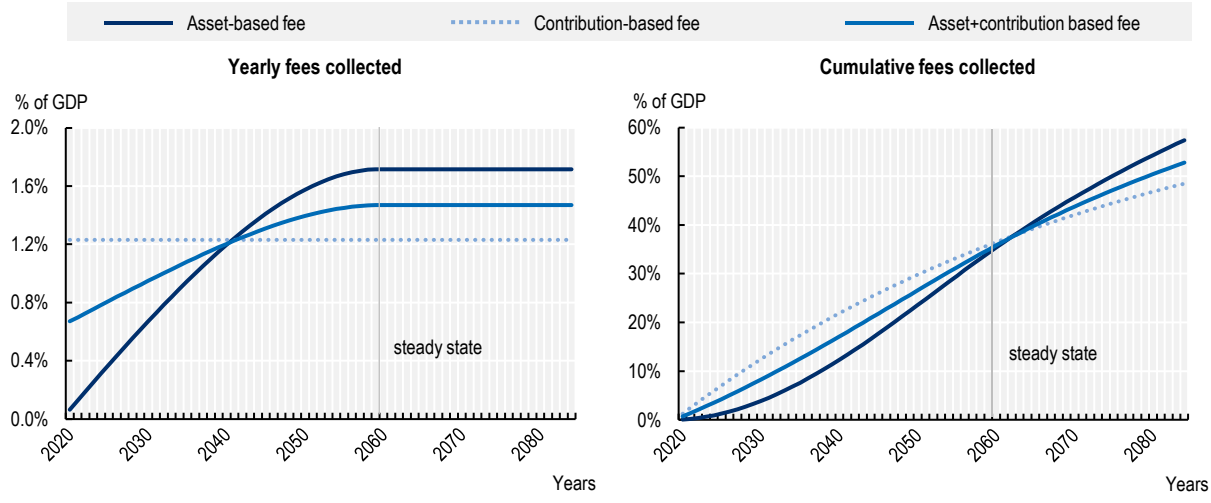
3.4.1. Maturing asset-backed pension arrangement

The model assumes that the asset-backed pension arrangement was introduced in 2020 and that contributions from all age cohorts started in that same year. The number of individuals in each single-year age cohort is assumed to be equal. Each individual saves 10% of wages from age 25 to 64 (except for those who were already older than 25 when the arrangement was introduced).

As the asset-backed pension arrangement matures,[17] providers collect fees that represent a growing share of GDP for fee structures charging on assets or returns. For the contribution-based fee, fees collected always represent a constant share of GDP, simply because contributions are a constant fraction of GDP over time. Figure 3.12 (left panel) shows that it takes 40 years for fees collected to reach a constant share of GDP for the asset-based fee and the mixed fee structure charging on assets and contributions. Forty years are needed for the arrangement to mature, as afterwards each cohort in the arrangement saves for a full career. This is because individuals who were already in the labour market when the new arrangement was introduced can only contribute for part of their career. During the maturing period, total assets therefore represent a growing share of GDP, explaining why fees collected on assets or returns also increase as a share of GDP.

Figure 3.12. Time profile of yearly and cumulative fees collected for different fee structures

As a percentage of GDP



Note: The figure compares the fees collected for the 1% asset-based fee, the 20.5% contribution-based fee and the mixed fee structure charging on assets (0.5%) and contributions (10.7%), which are equivalent for the individual under the baseline assumptions. The 18.6% return-based fee and the mixed fee structure charging on assets (0.5%) and returns (9.3%) are not shown as they provide the same results as the asset-based fee.

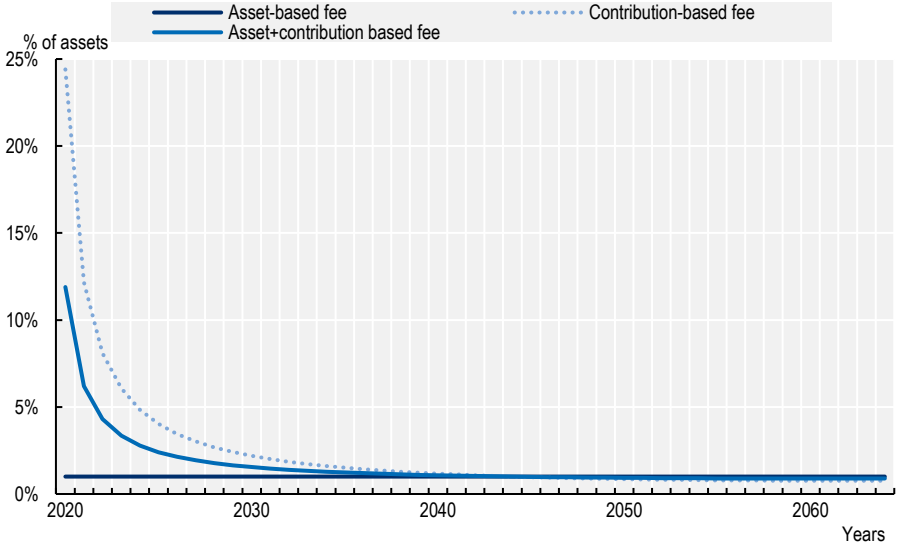
Providers collect more fees with an asset-based fee when the asset-backed pension arrangement is mature, i.e. when it reaches the steady state because all cohorts of members can contribute for a full career. After 40 years, yearly fees collected with the 1% asset-based fee represent 1.7% of GDP, as compared to 1.2% of GDP with the 20.5% contribution-based fee and 1.5% of GDP with the mixed fee structure charging on assets (0.5%) and contributions (10.7%). This is consistent with the results found at the individual level, which showed that providers collect a larger amount of fees by the end of the accumulation period with the asset-based fee than with the contribution-based fee (Table 3.1).

It takes more than 40 years for providers to accumulate the same amount of collected fees with the asset-based fee compared to the contribution-based fee that produces the same charge ratio for individuals. The right panel of Figure 3.12 presents the cumulative fees collected over time for different fee structures. Because the contribution-based fee is front loaded, providers collect more fees with this fee structure at the introduction of the asset-backed pension arrangement. Even though yearly fees collected start to be larger with the asset-based fee after 22 years, it takes another 22 years to compensate for the early years. Therefore, it is only after 44 years of existence of the asset-backed pension arrangement that providers will be better off with the asset-based fee. This is more than the 29 years identified at the individual level in Figure 3.3. This is because the asset-backed pension arrangement covers individuals with less than 40 years of contributions during the maturing phase, thereby reducing the amount of fees collected with the asset-based fee proportionally more than with the contribution-based fee (Figure 3.4, middle panel).

Finally, expressing fees as a percentage of total assets for cross-country comparisons may be misleading. Conducting cross-country comparisons of fees charged is a complex matter. One reason is that providers of asset-backed pension arrangements may use different fee structures in different countries.[18] Reporting the volume of fees collected yearly as a percentage of total assets allows to express all fee structures using the same reference as the asset-based fee, but it may result in misleading conclusions. Figure 3.13 shows that, when using total assets as the reference for fees collected, the contribution-based fee looks more expensive than the asset-based fee during part of the maturing phase, in particular in early years where contributions represent a large fraction of total assets. This is so when both fee structures are neutral for the individual, as they result in the same loss of accumulated assets at retirement compared to a situation without fees (charge ratio).

Figure 3.13. Time profile of yearly fees collected for different fee structures using total assets as the reference value

As a percentage of total assets

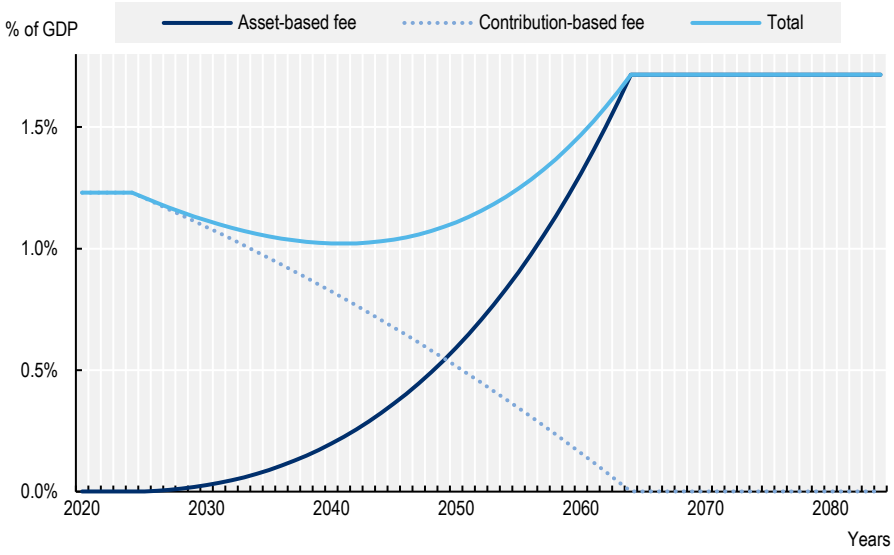


Note: The figure compares the fees collected as a percentage of total assets for the 1% asset-based fee, the 20.5% contribution-based fee and the mixed fee structure charging on assets (0.5%) and contributions (10.7%), which are equivalent for the individual under the baseline assumptions. The 18.6% return-based fee and the mixed fee structure charging on assets (0.5%) and returns (9.3%) are not shown as they provide the same results as the asset-based fee.

3.4.2. Transition from a contribution-based fee to an asset-based fee

Given the time profile of fees collected under the different fee structures, providers of asset-backed pension arrangements may prefer to start with a contribution-based fee and transition later to an asset-based fee. This would allow them to collect sufficient fees at the introduction of the arrangement to be able to run it and then to increase fee collection over time. Figure 3.14 illustrates the transition from a 20.5% contribution-based fee to a 1% asset-based fee. All individuals contributing for a full career are neutral between these two fee structures as they produce the same charge ratio. However, the asset-based fee allows a larger fee collection in steady state. Whether the arrangement is mature or not when making the transition does not matter, as fees collected under a contribution-based fee always represent a constant share of GDP during the maturing and steady-state phases. The analysis assumes that, from 2025, all new savers have fees charged on assets, while those who had joined before remain with the contribution-based fee until the end of their accumulation period. The amount of fees collected under the contribution-based fee therefore declines over time, while it is the opposite for the asset-based fee. On aggregate, providers would collect lower fees during the 30 years following the start of the transition, but would collect more fees afterwards, as individuals under the asset-based fee become prominent in the arrangement.

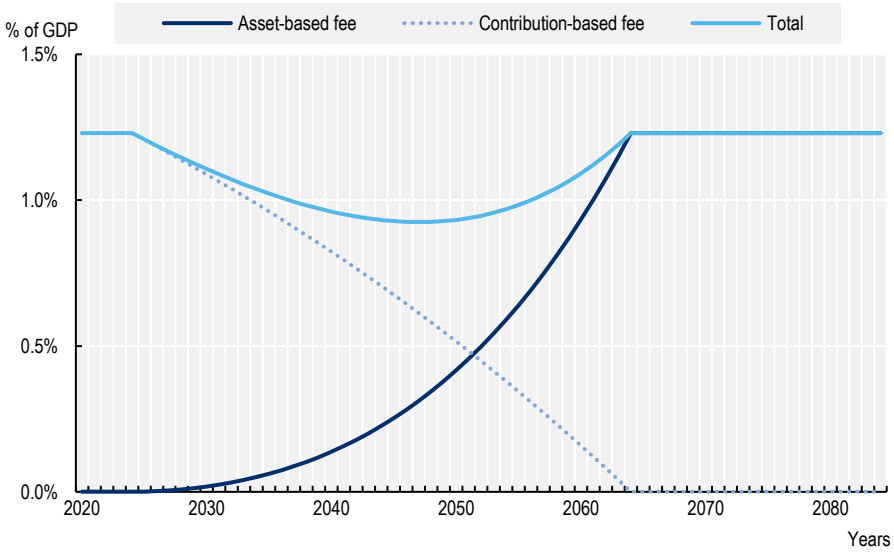
Figure 3.14. Fees collected during the transition from a contribution-based fee to an asset-based fee making individuals neutral



Note: The figure shows the fees collected when transitioning in 2025 from a 20.5% contribution-based fee to a 1% asset-based fee, which are equivalent for the individual under the baseline assumptions.

Providers can achieve the same level of fee collection in the long term than initially when moving from contribution-based to asset-based fees while reducing the charge ratio for individuals, thereby benefiting plan members. Figure 3.15 illustrates the transition from a 20.5% contribution-based fee to a 0.7% asset-based fee. After the transition period is over, providers would collect the same level of fees as before (1.2% of GDP). In between, fee collection would be lower, falling to 0.9% of GDP. Individuals with the asset-based fee would be better off than those who were in the arrangement before the transition, as the charge ratio would fall from 20.5% to 14.6%.

Figure 3.15. Fees collected during the transition from a contribution-based fee to an asset-based fee making the provider neutral in steady state



Note: The figure shows the fees collected when transitioning in 2025 from a 20.5% contribution-based fee to a 0.7% asset-based fee.

3.5. Conclusions

This chapter has analysed the effect of different fee structures on individuals and providers of asset-backed pension arrangements. It used deterministic and stochastic modelling to calculate indicators measuring the cost to individuals in terms of foregone assets accumulated at retirement and average return. It also calculated the level of fees collected by providers at the individual level and at the aggregate level. The analysis provides several main conclusions.

Fees can reduce significantly the level of assets accumulated at retirement. With a 1% asset-based fee, the individual suffers a reduction of 20.5% in the total assets accumulated at retirement compared to a situation without fees (charge ratio). This corresponds to a decline in the rate of return of 1% (reduction in yield). In addition, providers collect an amount of fees equivalent to 31.7% of total contributions (fees collected). By the end of the accumulation period, most of the fees have been collected on the capital, as opposed to the investment income. Moreover, fees collected increase with the length of the contribution period and the rate of return, but decrease with the contribution density and the earnings growth rate.

For a contribution-based fee, the charge ratio, the fees collected, and the fee rate are all equal. This implies that for this fee structure, the charge ratio and the fees collected are insensitive to the number of years of contributions, the amount contributed and the investment rate of return. By contrast, the reduction in yield implied by a contribution-based fee decreases with the length of the contribution period and the rate of return, but increases with the contribution density and the earnings growth rate.

Equivalent fee structures for the individual are not necessarily neutral for the provider. Under certain baseline assumptions, individuals are neutral, i.e. same charge ratio, between the 1% asset-based fee and a 20.5% contribution-based fee, an 18.6% fee on returns, a mixed fee on contributions (10.7%) and assets (0.5%), and a mixed fee on assets (0.5%) and returns (9.3%). Providers, however, have an incentive to levy fees on assets or on returns rather than on contributions, because fee collection will be larger, except when individuals contribute for short periods.

Individuals with contribution periods below 40 years, those experiencing faster earnings growth during their career than the average, and those with lower rates of return than the average would be better off, i.e. they would have a lower charge ratio, with a 1% asset-based fee than with an equivalent 20.5% contribution-based fee. By contrast, individuals with contribution gaps, those experiencing slower earnings growth than the average, and those with higher rates of return than the average would be better off with the contribution-based fee. When introducing uncertainty, individuals are more likely to suffer a larger charge ratio with an asset-based fee than with the other equivalent fee structures.

Linking the payment of performance fees to the achievement of a certain rate of return (hurdle rate) or to the compensation of past negative returns (high-water mark or carry-over mechanism) reduces the charge ratio for the individual because the provider collects fewer performance fees. The carry-over mechanism and the high-water mark treat positive and negative performance in a symmetrical way because the provider has to compensate for any negative past performance before collecting a performance fee again. Moreover, the carry-over mechanism allows the provider to collect performance fees more regularly, because part of the positive performance fees is put into a reserve, thereby smoothing out fee payments.

Providers may be better off with higher volatility on investment returns in their portfolio as they may get higher performance fees, except with the carry-over mechanism and the high-water mark. When higher volatility is associated with higher average returns, providers collect more fees with all fee structures studied except the contribution-based fee.

Providers of asset-backed pension arrangements would prefer to collect fees on contributions rather than on assets over all cohorts of individuals in the early years of an asset-backed pension arrangement. When the arrangement is mature as all cohorts of individuals can contribute for a full career, the 1% asset-based fee allows providers to collect more fees than the 20.5% contribution-based fee. However, during the initial years of the asset-backed pension arrangement, fee collection under the asset-based fee is lower, while the contribution-base fee immediately reaches its full potential and produces constant revenues. Therefore, it may take around 40 years before the asset-based fee starts to pay-off for providers.

Transitioning from a contribution-based fee to an asset-based fee could be positive for providers and individuals. Such a transition could allow providers to increase aggregate fee collection without increasing the charge ratio for individuals. Alternatively, it could allow providers to reduce the charge ratio for individuals while keeping the same level of aggregate fee collection in the long term. Moreover, transitioning to a mixed fee structure including an asset-based fee and a performance fee could help to better align the interests of providers and individuals. However, the conditions under which this may apply need to be further studied. This will be covered in the next edition of the *OECD Pensions Outlook*.

Finally, expressing fees as a percentage of total assets for cross-country comparisons could lead to confusion. Reporting the volume of fees collected yearly as a percentage of total assets in different countries allows to express different fee structures using the same reference as the asset-based fee. However, depending on the maturity of the asset-backed pension arrangements under comparison, it could lead to the conclusion that a country using a contribution-based fee charges higher fees than a country with an asset-based fee, because fees collected represent a larger share of the assets under management. This could hide the fact that both fee structures are neutral for the individual, as they result in the same loss of accumulated assets at retirement compared to a situation without fees (charge ratio).

Annex 3.A. Model description

Individual earnings are assumed to grow in line with productivity growth (p) and inflation (i). Earnings at a given year t (W_t) in discrete time[19] can be written as a multiple of earnings in period 0 (W_0), when the individual is 25 years old:

$$W_t = W_0(1+p)^{t-1}(1+i)^{t-1} \quad \text{Equation 1}$$

The contribution rate (c) is a constant fraction of earnings. A fee on contributions (f_C) reduces the net contribution (C_t) into the plan as follows:

$$C_t = c(1-f_C)W_t = c(1-f_C)W_0(1+p)^{t-1}(1+i)^{t-1} \quad \text{Equation 2}$$

These contributions earn a constant rate of return r. Taking into account a fee on assets (f_A) and a fee on investment returns (f_R), the level of assets accumulated at time t > 1 (A_t) equals:

$$A_t = (A_{t-1} + C_t)[(1+r)(1-f_A) - \max(r,0)f_R] \quad \text{Equation 3}$$

Assuming a positive rate of return (i.e. max(r,0) = r), at the end of the accumulation period (t = T), the level of assets equals:

$$A_T = c(1-f_C)W_0[(1+r)(1-f_A) - rf_R]\frac{[(1+r)(1-f_A) - rf_R]^T - (1+p)^T(1+i)^T}{[(1+r)(1-f_A) - rf_R] - (1+p)(1+i)} \quad \text{Equation 4}$$

In the absence of fees, the equation simplifies to:

$$A_{T(no\ fees)} = cW_0(1+r)\frac{(1+r)^T - (1+p)^T(1+i)^T}{(1+r) - (1+p)(1+i)} \quad \text{Equation 5}$$

The charge ratio is the percent loss in the level of assets at the end of the accumulation period compared to a situation without fees. It is therefore $1 - \frac{A_T}{A_{T(no\ fees)}}$. Using Equation 4 and Equation 5, one can immediately see that the charge ratio does not depend on the initial level of earnings (W_0) nor on the contribution rate (c). In addition, when there is only a fee on contributions (i.e. f_A=f_R=0), the charge ratio simply equals the fee rate (f_C).

Moreover, fees collected by the provider at time t >1 (F_t) can be written as:

$$\begin{aligned} F_t &= cW_t f_C + (A_{t-1} + C_t)(1+r)f_A + (A_{t-1} + C_t)rf_R \\ &= cW_t f_C + A_t \frac{(1+r)f_A + rf_R}{(1+r)(1-f_A) - rf_R} \end{aligned} \quad \text{Equation 6}$$

For a contribution-based fee (i.e. f_A=f_R=0), fees collected in each year are simply equal to the product between the contributions paid (cW_t) and the fee rate (f_C). Therefore, by the end of the accumulation phase, the ratio of fees collected to the sum of contributions (before fees) is the fee rate (f_C).

Finally, for an asset-based fee (i.e. $f_C=f_R=0$) and a return-based fee (i.e. $f_C=f_A=0$), one can derive the reduction in yield directly from Equation 3. The reduction in yield equals $\frac{1+r}{1+r_N}-1$, with r_N the net (after-fees) rate of return. For an asset-based fee, this gives $\frac{1+r}{(1+r)(1-f_A)}-1=\frac{f_A}{1-f_A}$. For a return-based fee, the reduction in yield is equal to $\frac{1+r}{1+r-rf_R}-1=\frac{rf_R}{1+r(1-f_R)}$.

References

Dai, W., R. Merton and S. Rizova (2020), *On the Valuation of Performance Fees and Their Impact on Asset Managers' Incentives*, https://doi.org/10.2139/ssrn.3686987. [4]

Han, T. and D. Stanko (2018), "2018 Update on IOPS work on fees and charges", *IOPS Working Papers on Effective Pensions Supervision* 32, http://www.iopsweb.org/WP-32-2018-Update-on-IOPS-work-on-fees-and-charges.pdf. [1]

OECD (2019), *Pensions at a Glance 2019: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/b6d3dcfc-en. [2]

OECD (2018), "Pension costs in the accumulation phase: Policy options to improve outcomes in funded private pensions", in *OECD Pensions Outlook 2018*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2018-6-en. [3]

OECD (2001), *Private Pensions Systems: Administrative Costs and Reforms*, Private Pensions Series, No. 2, OECD Publishing, Paris, https://doi.org/10.1787/9789264189805-en. [5]

Notes

[1] Fees on salaries are equivalent to fees on contributions. For example, it is equivalent for an individual to contribute 10% of salary and pay on top a fee of 1.5% of salary, or to contribute 11.5% of salary and pay a 15% fee on contributions. The level of fees paid is the same in both cases.

[2] The model does not consider selected features that may exist in different countries and affect fee levels, such as collective investment, guarantees, risk mitigation techniques, biometric protection and annuities.

[3] See Annex 3.A for the model description.

[4] The analysis assumes a portfolio with 60% in equities (World and EU) and 40% in bonds (government and corporate).

[5] The productivity growth rate (1.5%), the inflation rate (1.7%) and the nominal rate of return (5.7%) are drawn from historical values and correspond to the average of the respective distributions used for the stochastic model.

[6] In practice, the provider may collect fees more frequently than annually.

[7] The first real earnings growth path assumes that earnings grow at the beginning of the career and decline at the end of the career; the second path assumes that earnings grow at the beginning of the career and reach a plateau; the third path assumes that earnings are flat during the whole career.

[8] For the mixed fee structures, the analysis fixes the asset-based fee at 0.5% and determines the fee on contribution (respectively on returns), so that the resulting charge ratio equals 20.5%.

[9] Fees on returns are only charged when the performance is positive.

[10] Annex 3.A provides formulas showing why, for a contribution-based fee, the charge ratio and the fees collected as a proportion of contributions are always equal to the fee rate.

[11] Alternatively, a 0.6% charge on assets produces the same level of fees collected as the 20.5% contribution-based fee, but a lower charge ratio of 13.0%.

[12] The time profile of fee collection is identical for the 1% asset-based fee and the 18.6% return-based fee.

[13] Annex 3.A provides formulas showing that the charge ratio does not depend on the contribution rate.

[14] The result holds when identifying fee structures producing the same median charge ratio (instead of the average) as the 1% asset-based fee.

[15] This design is inspired by the one used by the Japanese Government Pension Investment Fund (GPIF) with its asset managers.

[16] The median rather than the average is used here for fees collected, because the median is less sensitive to extreme values.

[17] An asset-backed pension arrangement is mature when all cohorts of members have had the possibility of contributing to it for a full career. When the arrangement is introduced, individuals already in the labour market at that time can only contribute for the final part of their career. Once the arrangement only covers individuals contributing for their full career because the first cohorts of members have retired, assets under management represent a constant share of GDP and a steady state is reached.

[18] Other reasons include the fact that all fees may not always be reported (e.g. indirect costs reducing the investment returns), and that fees charged may cover different types of services.

[19] OECD (2001[5]) presents a similar model in continuous time.

4 Good practices for developing standard mortality tables for retirement income arrangements

This chapter presents a set of good practices that can serve as guidance to assist in the development and assessment of the standard mortality assumptions used for pensioners and annuitants in the context of the provision of retirement income.

Mortality assumptions are crucial for the provision of any lifetime retirement income in order to ensure the sustainability of the income stream given the amount of assets available to finance it. However, the development of mortality tables is a complex process requiring the consideration of numerous factors and involving many modelling decisions. There is no single correct approach to take, and a certain amount of expert judgement is always required.

This chapter puts forward a set of good practices that can serve as guidance for the development of standard mortality tables for pensioners and annuitants in the context of the provision of retirement income. These principles should help to guide the process to develop mortality assumptions and to justify the various modelling decisions made.

The guidelines presented in this chapter are organised around four broad areas that should be considered when developing mortality assumptions. The first is accounting for the context in which the assumptions will be developed and used. This involves understanding historical patterns and drivers of mortality, determining the extent of granularity and standardisation needed for the assumptions, and being open to innovative approaches, particularly when data may not be readily available. The second area is the development of baseline mortality assumptions. This involves choosing the data on which to calibrate these assumptions, graduating the calculated mortality rates and adjusting those assumptions to the target population where necessary, and determining appropriate assumptions for the oldest ages. The third area is the development of assumptions for future mortality improvements. This involves making sure that improvements are accurately accounted for, selecting a model in line with future expectations, and choosing the data on which to calibrate the model. The final area involves ensuring internal consistency. Here it is important to ensure coherency and transparency in the assumptions developed. This chapter explains the importance of each of these issues and discusses in more detail the considerations to take into account in the development of mortality assumptions in the context of the provision of retirement income.

4.1. Accounting for the context in which mortality assumptions are developed and used

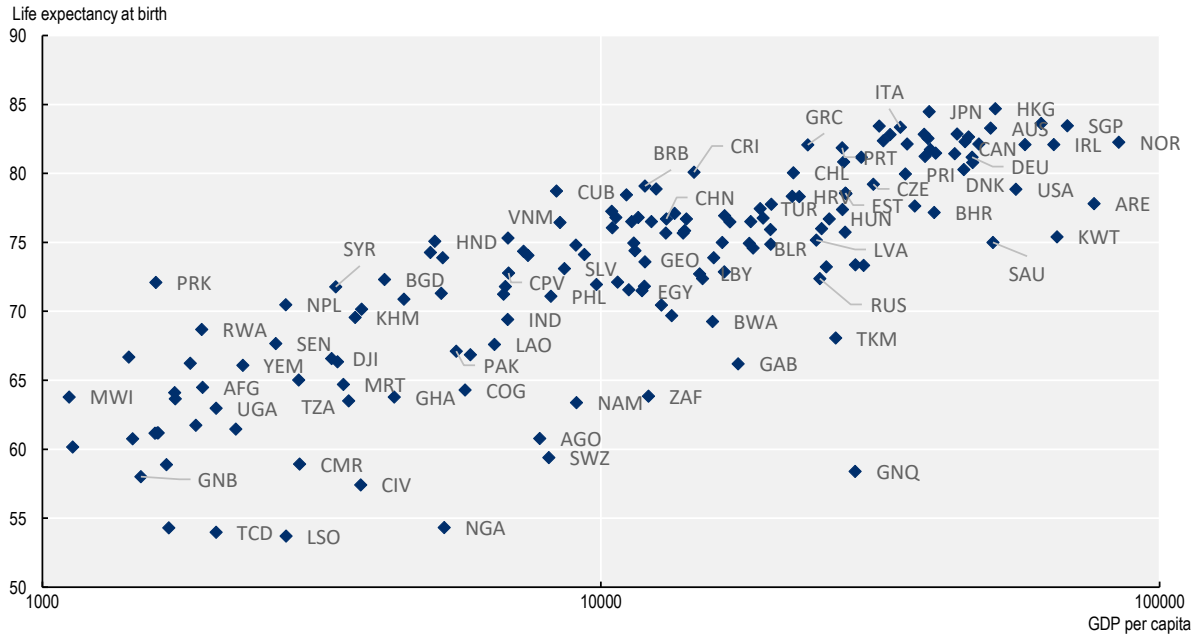
The development of mortality assumptions should consider contextual factors and drivers that can influence the patterns of mortality, as well as the purpose for which they will be used, in order to ensure that they will be accurate and appropriate for their use. Having an understanding of historical patterns and the drivers of mortality will aid in forming expectations about what will happen going forward. The purpose of the assumptions will influence the preference for more or less granularity and standardisation, as these preferences could differ depending on whether the assumptions are being used, for example, to establish reserves or calculate retirement income. In addition, the techniques to model mortality are constantly evolving, so the development of assumptions and the assessment of their appropriateness should remain open to innovative approaches that could improve their accuracy.

4.1.1. Understand historical patterns to inform future expectations

Understanding the trends in mortality and life expectancy is important to inform decisions regarding the selection and calibration of the models used to develop mortality assumptions. Economic and political contexts as well as societal trends can influence the historical trend of mortality, and changing contexts mean that certain historical experience may not always be an appropriate base for future expectations. Understanding the specific drivers of mortality in these contexts can help to inform whether observed trends will continue or whether changes are likely, providing a rationale for longer-term expectations regarding an acceleration or deceleration of improvements in life expectancy. In addition, an analysis of patterns for different groups of the population can aid in determining whether expectations might be different for the pensioner or annuitant population of interest.

Economic context can have a material influence on the speed of mortality improvement, particularly for countries that are rapidly developing. Current OECD countries who were lagging behind the OECD average life expectancy in the 1960s have since gained significant ground as they developed economically and their life expectancy caught up with the level observed in other OECD countries. Chile, Colombia, Costa Rica, and Korea, whose life expectancies at birth lagged at least 10 years behind the then-OECD average, have since caught up to the current OECD average life expectancy of just over 80 years, with Korea even exceeding this level (OECD, 2021[1]). Indeed, life expectancy is highly correlated with economic development, as Figure 4.1 clearly shows. Once the life expectancy of developing countries reaches that of economically advanced countries, the rapid growth will be likely to slow to the rate observed in the latter countries rather than continuing its rapid progression indefinitely into the future.

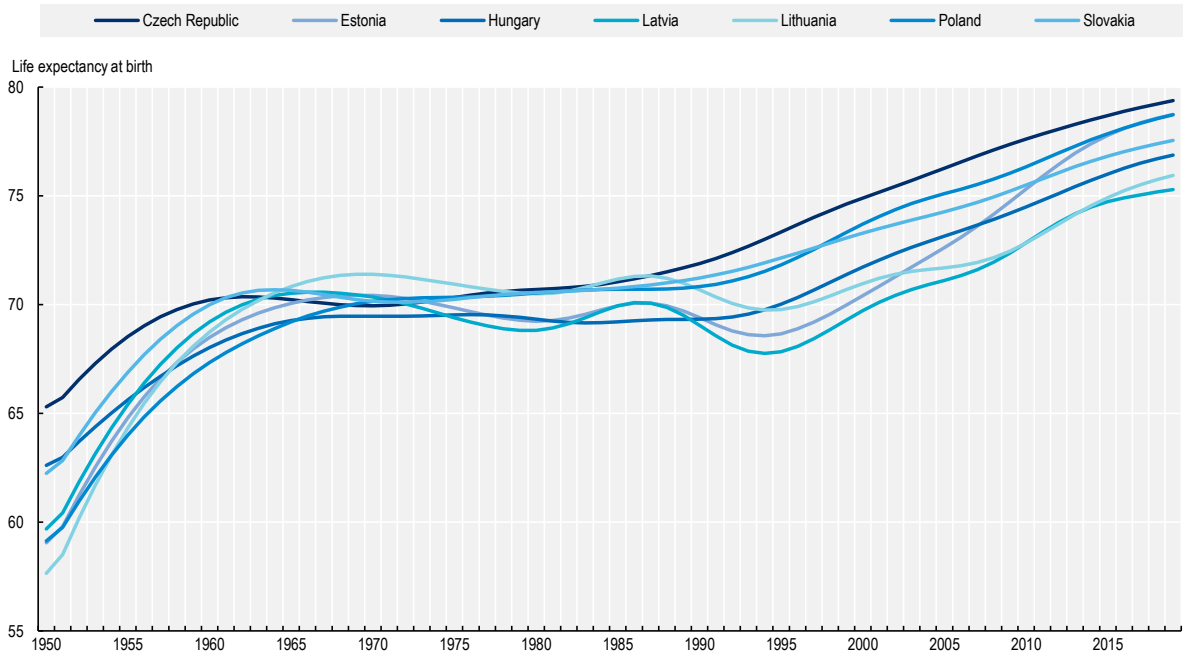
Figure 4.1. Life expectancy and GDP per capita, 2018



Note: GDP per capita is measured in 2011 international dollars, which corrects for inflation and cross-country price differences.
Source: Data from "Life Expectancy" Published Online at OurWorldInData.org: https://ourworldindata.org/life-expectancy

Political context can also influence the direction of trends in life expectancy. Shifts in political regimes, for example, can lead to clear breaks in historical patterns. The trends in life expectancy of Eastern European and Baltic countries illustrate the influence of the political context. Figure 4.2 shows that after years of stagnation, many of these countries experienced accelerated increases in life expectancy following the collapse of the Soviet Union, breaking with earlier observed trends.

Figure 4.2. Life expectancy at birth in selected Eastern European countries, 1950-2019

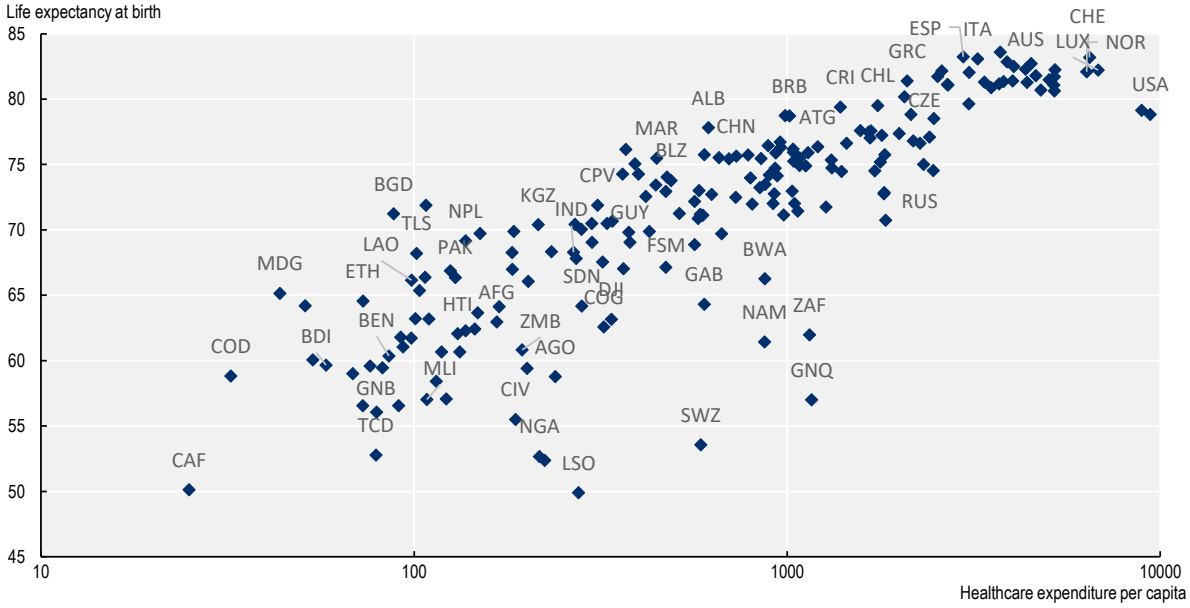


Source: Data from "Life Expectancy" Published Online at OurWorldInData.org: https://ourworldindata.org/life-expectancy

Breaks in historical mortality patterns may also be temporary. The COVID-19 pandemic led to significant excess mortality over 2020 and 2021. However, these spikes in mortality should largely be anomalous, with mortality levels returning to their pre-COVID-19 levels and trajectory. As such, it may be prudent to omit these years from any calibration of mortality going forward, as these high levels of mortality are not expected to continue for those who have survived the pandemic. Indeed, in response to the pandemic, the latest mortality projections model developed by the Continuous Mortality Investigation (CMI) in the United Kingdom allows users change the weight given to specific years in the calibration of the model (CMI, 2021[2]).

Specific policy initiatives can also affect life expectancies. For example, increased health care expenditure is strongly correlated with higher life expectancies, as seen in Figure 4.3. As such, policy initiatives that aim to increase public health care spending, such as the introduction of universal health care, should have a positive impact on life expectancy trends. Other policies aim to encourage more healthy behaviours, which can also have a direct impact on life expectancy. Cigarette taxes, for example, have been effective at reducing the prevalence of smoking, particularly for young adults and lower socio-economic groups (Sharbaugh et al., 2018[3]; Wilkinson et al., 2019[4]).

Figure 4.3. Life expectancy and health care expenditure, 2014

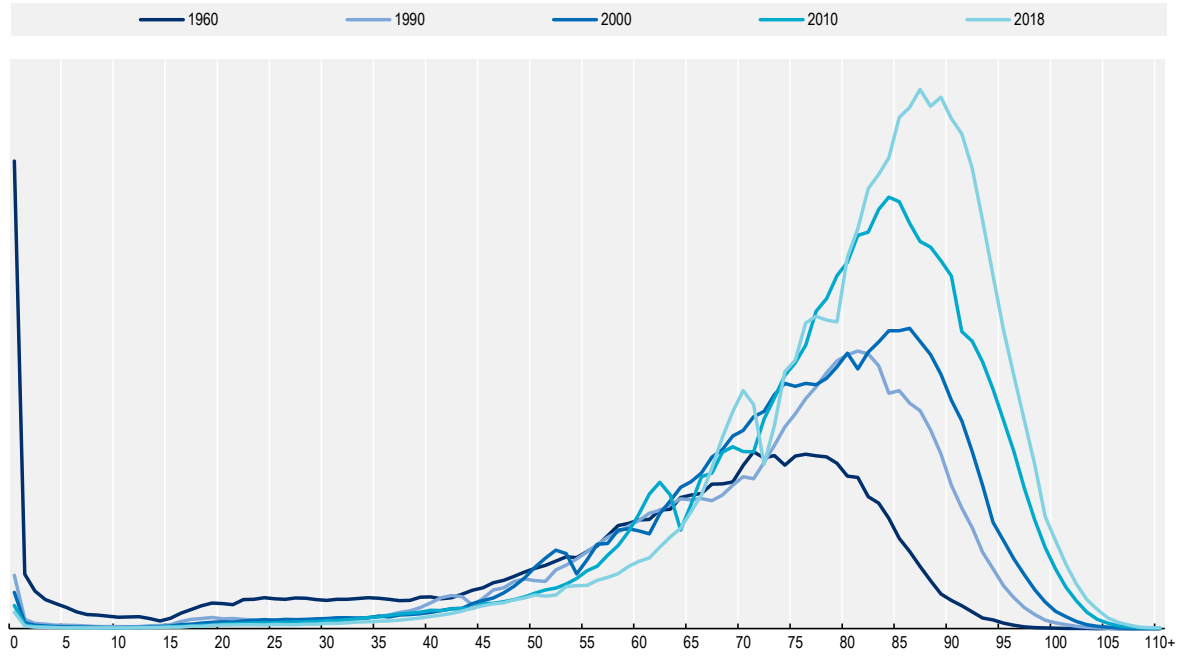


Note: Total health care expenditure per capita is adjusted for price differences between countries and for inflation and measured in international dollars.
Source: Data from "Life Expectancy" Published Online at OurWorldInData.org: https://ourworldindata.org/life-expectancy

An understanding of the specific drivers underlying the observed historical patterns can better inform future expectations and provide a rationale for why changes could be expected. In many countries, reduced improvements in mortality from cardiovascular diseases have been a large driver in the overall slowdown in improvements observed over the last decade in many high-income countries (OECD/The King's Fund, 2020[5]). Furthermore, while declining smoking rates were contributing to rapid mortality improvements, rising obesity as well as increased rates of diabetes are now offsetting some of these gains. Increased mortality from dementia at the oldest ages is also a concern, and is contributing to these negative trends. In Canada and the United States, deaths from drug overdoses have been a significant driver of the slowdown in mortality improvements (Ye et al., 2018[6]; Case and Deaton, 2017[7]). In Mexico, the stagnation of life expectancy since around 2000 has been mainly due to high rates of violence and homicide (Alvarez, Aburto and Canudas-Romo, 2019[8]). Identifying the direction of these types of drivers can provide an indication of whether long-term improvements could be higher or lower than historical trends imply.

The evolution of the distribution of lifespans can provide some insight as to where there is the most room for future improvement, the extent to which the maximum lifespan may be increasing, and the extent of longevity inequalities within the population. Where the left side of the distribution has decreased substantially, mortality improvements are more likely to shift to older ages where there is more room for additional improvements. A rightward shift of the distribution over time would indicate that the maximal age of survival is still increasing. A compression of the curve around the modal age of death would indicate a reduction in the variance of lifespans and therefore a likely reduction of longevity inequalities within the population. For example, Figure 4.4 shows a significant decrease in deaths below age 65 in Japan since 1960, accompanied by an increase in both the modal and maximal age of death.

Figure 4.4. Distribution of the age at death in Japan, 1960-2018



Source: Data from the Human Mortality Database: www.mortality.org.

Looking at the patterns of mortality improvements for different subgroups of the population will provide clearer insight as to any underlying inequalities in longevity and how longevity trends may differ across population subgroups. Some jurisdictions, such as Denmark, the United Kingdom and the United States, have seen the differences in life expectancy across socio-economic groups increasing over the last decades (Cairns, 2019[9]; Wen, Cairns and Kleinow, 2020[10]; Case and Deaton, 2017[7]). This is relevant to pensioner and annuitant populations, who tend to be from higher socio-economic groups, as they may experience more rapid mortality improvements than observed on average for the general population. Changes in certain mortality drivers could also imply a change in any underlying inequalities in the population. In many countries, the lower life expectancy of more disadvantaged populations is linked to unhealthy behaviours and habits such as smoking, lack of exercise, or drug use (Cairns, 2019[9]; Geronimus et al., 2019[11]; Tarkiainen et al., 2011[12]). It would therefore be likely that any improvement in these negative trends would be accompanied by a reduction in longevity inequalities across socio-economic groups.

4.1.2. Determine the granularity of assumptions given the availability of data and the purpose for which the assumptions will be used

Mortality experience can vary widely across different subgroups of the population. As such, mortality assumptions often differentiate between select groups. The level of granularity of assumptions will depend on the relevance of the indicator, the data available on which to calibrate the assumptions, as well as the purpose for which they will be used.

In all contexts, age and gender are the most relevant variables to consider when deciding the granularity of assumptions. At a minimum, mortality assumptions systematically account for differences in mortality across age, as mortality generally increases exponentially with age. Mortality also differs significantly between genders, with females normally having lower mortality than males at all ages within the same population group. At birth, women in OECD countries can expect on average to live around five-and-a-half

years longer than males, but this difference can even exceed ten years (OECD, 2021[1]). Women aged 65 can expect to live over three years longer than their male counterparts in the OECD (OECD, 2022[13]). Given these differences, age and gender are the most common variables by which to differentiate mortality assumptions.

Variables indicating the socio-economic status of the individual may also be relevant, as higher socio-economic groups tend to have significantly higher life expectancy than those in lower socio-economic groups, even at older ages (OECD, 2016[14]). Furthermore, pensioner and annuitant populations tend to have a higher socio-economic level than the general population on average, with populations of voluntary annuitants typically demonstrating the largest differences from the population average. Common indicators used to differentiate among socio-economic groups for standard mortality tables are the level of pension income, the type of worker (e.g. blue or white collar), or geographical location.

Other indicators may aim to differentiate among types of beneficiaries. This could involve setting separate assumptions for members of public schemes and private schemes, or whether the pensioner is the original beneficiary or the surviving beneficiary. The extent to which mortality differs between these groups may depend on the particular context in which these schemes operate.

Mortality assumptions may also vary by some indicator of health. Distinct mortality assumptions are often used for smokers or for disabled populations, for example.

Developing separate assumptions for different groups requires sufficient data on which to base these assumptions. In many cases, there may not be sufficient data even if there is some evidence of substantial differences in mortality. For example, female disabled and male survivor beneficiaries tend to both be very small populations compared to the same groups of the opposite gender, largely driven by the historically male-dominated labour force covered by asset-backed pension arrangements. Where there is insufficient data, approximations may be used to adjust the mortality assumptions for other groups. For example, the CPM mortality tables in Canada provide factors to adjust the base mortality rates to the desired income band. In Peru, the mortality of the female disabled population is derived from the general population mortality based on the percentage of excess mortality that the male disabled population demonstrates.

The appropriate level of granularity also depends on the purpose for which the mortality assumptions will be used. Mortality assumptions used to determine retirement incomes are often unisex so as to not disadvantage women. In certain contexts, the use of socio-economic variables may also be considered discriminatory. On the other hand, income or health measures could be used as a way to increase the retirement income for more disadvantaged populations.

Mortality assumptions used for the purpose of calculating liabilities and reserves to secure future retirement incomes may be more granular so as to ensure a more accurate estimation of the level of assets needed to be set aside to finance future retirement incomes. As such, even if unisex mortality assumptions are used to calculate retirement incomes, the calculation of reserves usually relies upon separate assumptions for each gender. To capture the socio-economic gradient of mortality, assumptions used for reserving are also often based on pension amounts rather than individual lives.

The level of granularity of assumptions may also be different for the base assumptions and the mortality improvement assumptions. Mortality improvement assumptions usually only distinguish between ages and gender, whereas base mortality assumptions can vary by several additional variables.

4.1.3. Allow for flexibility to adapt assumptions where appropriate for their purpose

The level of standardisation required for mortality assumptions will depend in part on the purpose for which they are used. Standard mortality tables may serve as a basis for calculating retirement incomes or reserve requirements, or they may serve as a benchmark or reference from which to tailor assumptions to a specific population.

The use of standard mortality assumptions may be preferable where there is a need for consistency and comparability. This may be the case, for example, where standard assumptions are used to calculate the allowed level of programmed withdrawal, as in Chile, or where used for financial reporting or tax purposes, as in the United States.

Nevertheless, more accuracy may be preferred where the mortality assumptions are needed to value liabilities or for risk management purposes. Here, entities should be able to adapt the standard assumptions to better reflect the mortality of their actual pensioner or annuitant population if they can justify a different level of mortality based on experience. While many jurisdictions require standard tables as a minimum basis for valuation, this could potentially discourage providers from creating products to serve markets with lower life expectancies. Therefore, providers should ideally be able to adjust the standard assumptions in either direction so long as it is justifiable. Chile and Denmark take this approach, and providers are required to justify any deviation in assumptions from the benchmark mortality rates established by the supervisor.

4.1.4. Be open to innovative approaches

It may not always be possible or desirable to use traditional approaches to model mortality and develop standard mortality tables. The modelling of mortality is an evolving field, with new approaches being developed to overcome challenges relating to a lack of data or experience, or to better align assumptions with realistic expectations.

The lack of available or reliable data can be a major hurdle in the development of mortality tables, particularly for small pensioner or annuitant populations. Overcoming this limitation typically involves a significant amount of expert judgement. However, emerging techniques for data analysis, such as machine learning, are starting to be used to improve mortality estimates where data is lacking and to reduce the reliance on expert judgement alone.

Machine learning techniques are also starting to be applied to the calibration of existing mortality models to improve mortality estimates. These techniques can aid in the selection of data or the optimisation of parameters to improve the model's fit and the accuracy of the modelled mortality rates, for example.

4.2. Establishing baseline mortality assumptions

Baseline mortality assumptions reflect the current level of mortality, without accounting for expected mortality improvements in the future. The calibration of these assumptions should be on a population that is as similar as possible to the pensioner or annuitant population to whom they will apply. Where the population is not the same due to a lack of available data, adjustments are needed to align the assumptions to the target population. The calibration of baseline mortality assumptions also requires assumptions around the pattern of mortality across ages, and in particular for older ages where less data is available. As such, model selection should aim to smooth and extrapolate observed data across ages in line with expectations, up to some maximum age that is set to ensure that the mortality assumptions apply to all surviving pensioners or annuitants.

4.2.1. Calibrate assumptions for baseline mortality on data that is as similar as possible to the target population

Mortality differs widely across different populations groups, so it is important to calibrate baseline mortality assumptions on data that reflects the actual mortality of the target pensioner or annuitant population to whom the assumptions will apply. Ideally, assumptions will rely on data from the target population itself. However, these populations are sometimes too small to reliably calibrate assumptions, so larger

populations for whom more data is available are often used. In this case, adjustments may be needed to ensure that the calibrated assumptions will reflect the expected mortality of the target population.

At a minimum, assumptions should rely upon mortality data from the same jurisdiction as the target population, as the differences in life expectancy across countries can be large. Among OECD countries, life expectancy at age 65 ranges from 17.9 years in Hungary to 24.6 year in Japan for women, and from 13.6 years in Lithuania to 20.2 years in Iceland for men (OECD, 2022[13]). This is a difference of over six years for both genders, which is very significant when assessing how long retirees can expect to live and how much they will need to finance their retirement.

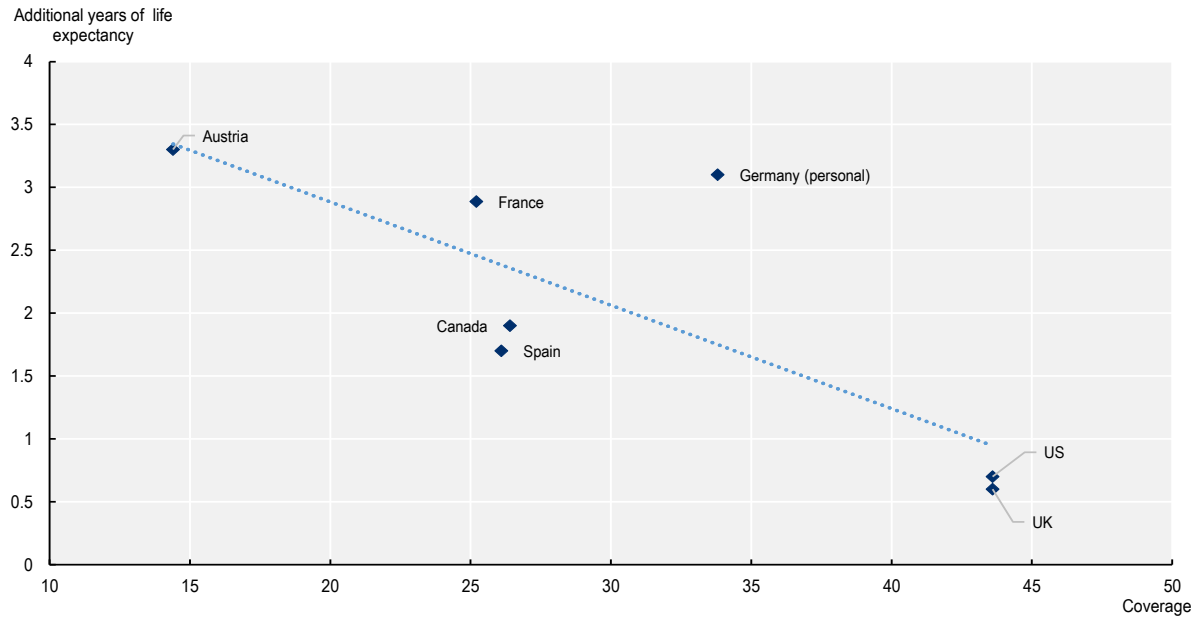
Life expectancy also varies significantly across groups within a given jurisdiction, so the calibration of assumptions should rely upon a population within the jurisdiction that is representative of the target population, where possible. Pensioners and annuitants in particular tend to be better off than the general population on average, and as such tend to have life expectancies higher than the general population. In practice, baseline mortality assumptions for pensioner or annuitant populations tend to result in life expectancies at age 65 of around 2 to 2.5 years higher on average than the general population.[1] Where these populations are smaller relative to the general population, as tends to be the case for annuitant populations, these differences can be even larger.

One approach to account for these differences is to rely upon a proxy population that demonstrates the same characteristics as the target population to calibrate baseline mortality assumptions. This approach can be useful when the target population is a specific subset of a population for which data is available. In Lithuania, for example, the public annuity provider created in 2020 uses mortality assumptions based on mortality data for higher-earning pensioners covered by the public system to proxy the expected mortality of new annuitants.

However, accurately defining a proxy population may be difficult given the data available, so lacking data for the target population, the general population most often serves as the basis for the calibration of baseline mortality assumptions. Where the general population is not representative of the target population, adjustment factors – or selection factors – are also needed to account for the lower expected mortality of the pensioner or annuitant population. These factors are normally based on the observed magnitude of differences in mortality between the pensioner or annuitant population and the general population in other jurisdictions where data is more readily available.

Calibrating selection factors on experience in other jurisdictions nevertheless requires some caution, as the level of coverage of any given type of scheme in a specific jurisdiction can substantially affect the size of the selection factor. Figure 4.5 demonstrates the negative relationship between coverage and the magnitude of the difference in life expectancy at age 65 between the general population and the pensioner/annuitant population. In view of this, it would not be advisable for a jurisdiction having a small population of annuitants, for example, to base selection factors solely on the UK pensioner population, where closer to half the population is covered.

Figure 4.5. Relationship between coverage and extent of mortality selection at age 65



Note: The population that the data on coverage represents does not exactly correspond to the population to which the mortality tables apply. The countries shown are selected based on the likelihood that these two populations more closely correspond to each other.
Source: Coverage figures from (OECD, 2019[15]). Selection factors are own calculations.

The magnitude of selection observed typically also varies across ages and between genders. Differences generally increase until around age 60 and decrease thereafter. Differences tend to be larger for men than for women.

4.2.2. Graduate baseline mortality considering available data and the desired fit and smoothness

Standard mortality tables should provide smooth estimates of mortality rates across ages. This requires graduating the raw baseline mortality rates calculated directly from the data. The selection of the graduation model should consider the characteristics of raw mortality rates as well as the trade-off between fit and parsimony.

The age range over which the baseline mortality rates are calibrated may inform the choice of graduation model. The Gompertz model is a simple model that captures the typically observed pattern of an exponential increase in mortality with age. However, this pattern is most appropriate for ages above around 65. If the graduation needs to extend to younger ages, variations on the Gompertz model that account for differing patterns at young and middle ages may be more appropriate for smoothing mortality across all ages. The Gompertz-Makeham model better reflects excess mortality at middle ages, while the Heligman-Pollard better captures mortality patterns for younger ages.

Alternative models, such as the Whittaker-Henderson model, can fit the pattern of the raw data more closely and across years as well as ages, but at the expense of parsimony. The Whittaker-Henderson model is commonly used to smooth baseline mortality assumptions for standard tables, but involves fitting significantly more parameters compared to simpler models. It also requires more judgment to set the user-defined parameters, such as those regulating the smoothness of the graduated mortality rates. Statistical

tests, in particular information criteria, can aid in the selection of the appropriate model to balance the trade-off between fit and parsimony.

Where the same population is the basis to calibrate both baseline mortality assumptions and future mortality improvements, it is possible to use a fully integrated model that fits past mortality and simultaneously projects it into the future. In selecting these types of models, the trade-off between fit and parsimony remains applicable.

4.2.3. Consider the expected pattern of mortality when extrapolating assumptions to the oldest ages

It is necessary to extrapolate the graduated rates for old ages to derive the mortality assumptions for the oldest ages – e.g. beyond age 90 or 95 – as the data at these ages are normally insufficient to calibrate mortality rates. The model chosen to do this should result in a plausible pattern of mortality at the oldest ages, in line with any trends observed at the national or regional level.

There are conflicting views regarding the pattern of mortality at the oldest ages, particularly ages over 110 where there is insufficient data on which to base any robust analysis. One side argues that mortality rates continue increasing exponentially with age, while the other side argues that mortality rates eventually plateau at around age 110 (Gavrilov, Gavrilova and Krut'ko, 2017[16]; Gampe, 2010[17]). In practice, both views are taken in the development of standard mortality tables. Those taking the former view most commonly use some variation of the Gompertz model to extrapolate mortality to the oldest ages. For the latter view, a logistic model such as the Kannisto model is often used.

The selected model should result in a pattern of mortality at the oldest ages that is consistent with expectations and available evidence. The extrapolated mortality rate should not reach 1 at an age below the desired maximum age (see the following guideline). If assuming that mortality rates ultimately plateau, most available evidence suggests that the force of mortality plateaus between around 0.7 and 1.2, which translates into an annual probability of dying of around 50% to 70%.

Input parameters to calibrate the model can also influence the pattern of the extrapolated rates to shape them in the desired direction. These parameters can include the age range over which the model is calibrated, the constraints imposed such as the maximum age, or any external (e.g. population) mortality table referenced.

4.2.4. Set the maximum age of the mortality table to ensure that assumptions will apply to all members of the target population

The mortality table should cover all of the ages that the target population includes, in particular the oldest of the population. If the target population includes individuals aged 115, the mortality table should include mortality assumptions at least to this age.

In practice, mortality tables normally assume an ultimate age beyond which there will be no survivors for the sake of practicality, regardless of the view taken on the pattern of mortality at the oldest ages. This ensures the ultimate run-off of any pension or annuity liabilities.

The ultimate age assumed, however, should be inclusive of everyone included in the target population to which assumptions apply. This is not always the case. Several standard mortality tables in OECD jurisdictions assume an ultimate age of 110 or lower, whereas individuals over this age may exist. Assumptions are still needed to apply to these oldest individuals regardless of how the mortality tables are used, whether to value liabilities or to calculate a retirement income.

Most standard mortality tables in OECD jurisdictions assume a maximum age of at least 120. Globally, no individual over the age of 120 is currently alive, and only one person has been verified as ever reaching an age older than 120.[2]

Nevertheless, this does not necessarily mean that the ultimate age of survival cannot be higher. Patterns in the evolution of distribution of lifespans of a population can inform assumptions regarding the maximum age of the mortality table. If this distribution has been shifting rightward, it could indicate that the maximum age of survival may still be increasing, thereby justifying a higher ultimate age than the oldest observed survivor.

4.3. Developing assumptions for future mortality improvements

Assumptions for mortality improvements capture the expected future improvements in life expectancy by reducing the baseline mortality rates. Mortality tables need to include assumptions for future improvements to avoid underestimating the life expectancy of pensioners and annuitants, which would result in setting aside insufficient assets to secure future retirement incomes. The model chosen to project future mortality rates should be able to reflect future expectations regarding mortality trends, while remaining as transparent as possible for users to understand. The historical data used to calibrate the model to estimate future trends in mortality should be stable in terms of demographic characteristics and be as representative as possible of the target population.

4.3.1. Account for future mortality improvements in a way that reflects reasonable expectations

Standard mortality tables need to account for future expected improvements in mortality, as they add materially to the life expectancy of pensioners and annuitants. The way that mortality tables incorporate improvement assumptions should accurately reflect reasonable expectations regarding the impact that improvements will have on life expectancy.

The impact of mortality improvements on the calculation of life expectancy is significant. Mortality improvements represent on average around 1.5 additional years of life expectancy at age 65 relative to the life expectancy calculated using only current baseline mortality rates.[3]

The most realistic format with which to account for mortality improvements is a two-dimensional improvement scale that varies by both age and time. Indeed, this is the most common format for improvement assumptions included with standard mortality tables in the OECD. The way in which mortality tables take mortality improvements into account should accurately reflect their expected impact on life expectancy. In reality, mortality improvements are different across ages and emerge gradually over time. Each year, the mortality rate at a given age usually declines compared to the previous year. Furthermore, trends by age may not be constant over time, but may accelerate or decelerate.

Simplifications of two-dimensional improvements may be preferred in light of constraints to incorporate two-dimensional mortality assumptions into modelling, but this should not be a prevailing constraint given current technological capabilities. An alternative to a two-dimensional improvement scale is a one-dimensional scale that provides improvements by age but does not vary over time. Depending on the model used to calibrate the assumptions (e.g. extrapolative models such as the Lee-Carter model), this may not make a material difference in calculations compared to a two-dimensional improvement scale. However, age-shift methods that proxy the increased life expectancy of younger cohorts by simply assuming that they have a younger age are not very accurate (e.g. assuming that a 65-year-old in five years will have the same life expectancy as a 63-year-old today), and can become less accurate over time.

4.3.2. Choose a projection model compatible with future expectations taking into account the trade-off between transparency and complexity

A variety of models are available to calibrate mortality improvement assumptions, each of which demonstrates a range of advantages and drawbacks. Selection of the appropriate model will need to consider expectations regarding how mortality will evolve in the future and how to best match those expectations while minimising the level of complexity in the model. While complex models may better fit the data and result in mortality improvement assumptions that better align with realistic expectations, they can reduce the transparency of the model, thereby making it more difficult for the end-user to understand how assumptions were derived.

Mortality projection models that are commonly used to derive future improvement assumptions vary in how they reflect future expectations and are able to incorporate expert judgement. The simplest approach is to apply a linear regression to historical mortality rates to derive the historical trend, and extrapolate this trend going forward. Interpolative models incorporate more judgement regarding expected future trends, and assume improvements will eventually converge to an expected long-term rate of mortality improvement. Age Period Cohort (APC) models deconstruct the patterns of historical mortality along age, period and/or cohort dimensions to extrapolate future mortality rates. Multi-population models extend these approaches to simultaneously project mortality for two or more related groups.

A key question in selecting a model for projecting mortality forward is whether future mortality improvements will reflect past experience indefinitely, or whether mortality improvements are more likely to converge to some other rate in the long term. If taking the former view, modelling options include simple regression models or age-period-cohort (APC) models. Both of these approaches can also be incorporated into an interpolative model to accommodate the latter view of a convergence to a long-term rate of improvement. A multi-population model, which is often an extension of an APC model, is another option that can also assume convergence to a long-term rate based on some reference population.

Increased model complexity can allow the model to better account for the relationship of mortality rates across ages. Simple regression models extrapolate future mortality improvements based on linear regressions of log mortality rates by age (group). APC models, such as the Lee-Carter and Cairns-Blake-Dowd models, are extrapolative models that deconstruct mortality patterns along age, period, and potentially cohort dimensions. While APC models are more complex to fit and to explain than simple regression models, they are better able to capture the age structure of mortality improvements and maintain coherent mortality rates in future years. The inclusion of a cohort effect is not always justified however, and unless historical experience suggests that mortality patterns have been very different for specific cohorts, they may add unnecessary complexity to the model.

The level of complexity involved in interpolative models can vary widely, and is driven by the sub-models used for the graduation and interpolation of mortality rates. Interpolative models generally involve two main steps:

1. Smooth historical mortality experience by fitting it to a model in order to establish an initial rate of mortality improvement by age.
2. Interpolate the initial rates of mortality improvement to a long-term rate of improvement.

Interpolative models can employ several types of the models already discussed to smooth historical mortality experience. Both simple regressions and APC-type models can be fit to historical mortality rates to derive smoothed historical improvement rates. In addition, models such as the Whittaker-Henderson model, which is also common to establish baseline mortality rates, can be fit across two-dimensional historical mortality experience. The latter model is the most complex and involves more user input to fit, but is also able to better reflect the specific patterns in mortality observed. APC models involve less subjectivity than models like Whittaker-Henderson, but are still able to reflect the age structure of mortality rates, which is not possible with a simple regression model.

The interpolation of the initial mortality improvement to a long-term rate of improvement can also involve more or less complexity. The simplest approach is to apply a linear interpolation by age, but this ignores any differences in the speed of convergence across time or ages. More complex approaches allow for different convergence rates across period and cohort dimensions, or changes in the slope of convergence over time. However, this also involves significantly more judgement in setting the parameters for convergence.

Multi-population models are the most complex option for projecting future mortality improvements. They nevertheless offer a potential solution to model mortality improvements for smaller populations for whom there is not sufficient data to calibrate a model, or to ensure coherent mortality projections across several related populations (e.g. for males and females). However, they can more be difficult to calibrate and to understand.

Another consideration for assessing the desired model complexity is the extent to which stochastic longevity scenarios are needed for longevity risk assessments that are consistent with the mortality tables developed. If this is the case, APC models and their extensions (e.g. multi-population models) lend themselves more easily to stochastic projections.

Generally, the modelling of mortality improvements for the oldest ages can adopt a simpler approach. As with establishing baseline assumptions, there is not sufficient data at the oldest ages on which to calibrate robust assumptions for improvements. There is mixed evidence as to whether older ages have recently experienced positive mortality improvements, but there does seem to be consistent evidence that mortality improvements decrease with age. A common approach for standard mortality tables is therefore to simply assume that mortality improvements decrease to 0% at a certain age. Alternatively, the rates fitted to the projection model can be extrapolated in each future year to cover the oldest age groups.

4.3.3. Calibrate mortality projection models on a stable population representative of the target population

Mortality projection models should be calibrated on data from a population that is representative of the target population, and which has not been subject to any major shocks or shifts over the historical period selected for calibration.

As with baseline mortality assumptions, mortality improvement assumptions should be based on a population that is related to the target population of interest. There is not normally sufficient historical data for pensioner or annuitant populations on which to calibrate robust trends. General population mortality is commonly used to establish mortality improvement assumptions for standard mortality tables, with the assumption that the mortality of the pensioner or annuitant population should improve at the same rate as the population on average. Where evidence indicates that life expectancies across socio-economic groups are diverging, mortality improvement assumptions may include an additional selection factor to account for the higher expected improvements of pensioner and annuitant populations.

The impact of different policies on historical demographic patterns also need to be considered. Some policies affecting a population's demographic composition can make it difficult to measure historical patterns on which to base future expectations. Israel's relatively open immigration policy, for example, has led to high levels of immigration that reduces the stability in the demographic characteristics of the population, which could potentially distort any measurement of historical patterns of mortality improvement (Israeli Association of Actuaries, 2018[18]). Another example is in Chile, where a reform of the pension system in 2008 greatly expanded its coverage to lower income individuals, changing the socio-economic composition of the pensioner population (Pensiones, 2015[19]).

The historical period selected to calibrate the models used to derive improvement assumptions should not demonstrate any major breaks in trend and overall should reflect at least near-term expectations regarding future mortality improvement. Model calibration should therefore ideally refer to a period over which the

average trend is relatively stable. It should also consider excluding large, anomalous shocks such as the years demonstrating excess mortality due to COVID-19.

Model calibration should also take into account the sensitivity of the model outputs to the selection of the historical period. Purely extrapolative models are generally more sensitive to the length of the historical period than interpolative models where initial improvement rates are reflective of the most recent fitted historical data.

4.4. Ensuring internal consistency

It is prudent to ensure that the mortality assumptions developed and the modelling decisions made demonstrate a certain level of consistency. Many distinct modelling decisions have to come together to establish the assumptions included in standard mortality tables. The resulting assumptions should be coherent with expectations regarding the relationships across different population groups, and modelling choices should be transparent and clearly disclosed.

4.4.1. Ensure coherency across different ages and groups

Mortality rates for different groups of the population consistently demonstrate certain relationships that the standard mortality table should reflect. As such, it is prudent to make sure that model outputs are coherent across different ages and population groups.

Mortality rates should generally increase monotonically with age. As a starting point, the model selected to graduate the baseline mortality assumptions should ensure that this is the case. A model that over fits the data, for example a Whittaker-Henderson model that does not put sufficient weight on smoothness, may result in a 'bumpy' mortality curve that does not demonstrate the expected pattern of increasing mortality with age. Mortality projections should also be coherent across ages. Projection models that do not impose a certain age structure may eventually distort the shape of the mortality curve across ages.

Male mortality should generally be higher than female mortality within the same population group. If this pattern is not apparent in the calibration of baseline assumptions, there is likely not sufficient data on which to develop robust assumptions. Any selection factors applied could also potentially distort the relationship of mortality across genders. Selection factors tend to be larger for males, so there could be a risk that their application could result in lower mortality for males than for females. The relationship between genders could also change over time as a result of higher projected mortality improvements for males. This is a particular risk when using extrapolative projection models, as the difference in life expectancy between men and women in many countries has been decreasing over the last few decades, meaning that males will have experienced higher mortality improvements than females.

The mortality for disabled populations should generally be higher than for healthy populations. This is because their underlying deteriorated health condition often leaves them more vulnerable to death, though this depends to a certain extent on the type of disability. A simple way to ensure that this relationship is not distorted in the future is to assume the same mortality improvement assumptions for both the healthy and disabled populations. This is a reasonable assumption, as the disabled population should benefit at least as much from the medical advances and external factors that are driving continued improvements in mortality for the healthy population.

While not an absolute constraint, evidence points to a convergence in mortality across population groups with age, whether between genders, across socio-economic groups, or for different categories of health. This is a result of a selection effect, whereby only the strongest and healthiest of the population survive to the oldest ages. This means that the differences in mortality across population groups should gradually diminish with age. The easiest way to ensure that this is the case is to reference a common mortality table when extrapolating mortality rates for different groups to the oldest ages.

4.4.2. Be transparent regarding modelling decisions

The modelling of mortality and development of standard mortality tables involves a considerable amount of judgement at each step of the process. The documentation for the development of the tables should identify areas where judgement was required and provide a rationale and justification for the modelling decisions made. It should also include information, such as sensitivity tests, to help the user understand the impact that the different decisions have had on the final assumptions. Ensuring transparency will help the user to determine whether the tables are appropriate for their intended use.

4.5. Summary of guidelines

The guidelines put forward in this chapter to establish standard mortality assumptions in line with best practices are summarised as follows:

Accounting for the context in which mortality assumptions are developed and used

When beginning to develop mortality assumptions, it is important to understand the context in which they are developed and the purpose for which they will be used.

1. *Understand historical patterns to inform future expectations* – understanding the past drivers of improvements in mortality can provide insight as to what will happen in the future and help to inform modelling decisions to be in line with those expectations.
2. *Determine the granularity of assumptions given the availability of data and the purpose for which the assumptions will be used* – assumptions may vary for different target groups, and the appropriate granularity will depend in part on the purpose for which the assumptions are used.
3. *Allow for flexibility to adapt assumptions where appropriate for their purpose* – whether to require the use of standard assumptions or to allow them to be adjusted to specific populations will depend in part on the purpose for which the assumptions are used.
4. *Be open to innovative approaches* – in some contexts, standard approaches to modelling mortality may not be possible or may be greatly improved by using emerging techniques.

Establishing baseline mortality assumptions

It is necessary to establish baseline mortality assumptions that reflect the current mortality levels of the target population.

1. *Calibrate assumptions for baseline mortality on data that is as similar as possible to the target population* – mortality levels vary significantly across population groups and the population(s) chosen to calibrate the model should reflect the characteristics of the target population.
2. *Graduate baseline mortality considering available data and the desired fit and smoothness* – the appropriate graduation model should reflect the expected pattern of mortality across ages.
3. *Consider the expected pattern of mortality when extrapolating assumptions to the oldest ages* – different models can lead to a continued increase in mortality by age or to a plateau in mortality rates.
4. *Set the maximum age of the mortality table to ensure that assumptions will apply to all members of the target population* – it should not be set at an age below the oldest living person in the target population.

Developing assumptions for future mortality improvements

It is necessary to establish mortality improvement assumptions that reflect the future expected decreases in mortality over time.

1. *Account for future mortality improvements in a way that reflects reasonable expectations* – mortality improvement assumptions should ideally vary across ages and over time.
2. *Choose a projection model compatible with future expectations taking into account the trade-off between transparency and complexity* – the choice should consider whether improvements are expected to converge to a long-term rate and should also aim for parsimony.
3. *Calibrate mortality improvement assumptions on a stable population representative of the target population* – trends cannot be accurately measured on a population that has experienced significant demographic change over the period or that has been subject to a major policy shock or shift.

Ensuring internal consistency

The final mortality tables should be in line with analysis and expectations.

1. *Ensure coherency across different ages and groups* – mortality tables should reflect the expected relationship of mortality rates for different populations.
2. *Be transparent regarding modelling decisions* – modelling decisions and judgement applied should be clearly disclosed and justified.

References

Akinyemiju, T. (ed.) (2018), "Impact of cigarette taxes on smoking prevalence from 2001-2015: A report using the Behavioral and Risk Factor Surveillance Survey (BRFSS)", *PLOS ONE*, Vol. 13/9, p. e0204416, https://doi.org/10.1371/journal.pone.0204416. [3]

Alvarez, J., J. Aburto and V. Canudas-Romo (2019), "Latin American convergence and divergence towards the mortality profiles of developed countries", *Population Studies*, Vol. 74/1, pp. 75-92, https://doi.org/10.1080/00324728.2019.1614651. [8]

Cairns, A. (2019), *Mortality Data By Socio-Economic Group, Region and Cause of Death: What Do the Patterns Tell Us?*. [9]

Cairns, A. et al. (2019), "Modelling Socio-Economic Differences in the Mortality of Danish Males Using a New Affluence Index", *ASTIN Bulletin*, Vol. 49/03, pp. 555-590, https://doi.org/10.1017/asb.2019.14. [20]

Case, A. and A. Deaton (2017), "Mortality and Morbidity in the 21st Century", *Brookings Papers on Economic Activity*, Vol. 2017/1, pp. 397-476, https://doi.org/10.1353/eca.2017.0005. [7]

CMI (2021), *CMI_2020 v01 methods*. [2]

Gampe, J. (2010), "Human mortality beyond age 110", in *Demographic Research Monographs, Supercentenarians*, Springer Berlin Heidelberg, Berlin, Heidelberg, https://doi.org/10.1007/978-3-642-11520-2_13. [17]

Gavrilov, L., N. Gavrilova and V. Krut'ko (2017), *Mortality Trajectories at Exceptionally High Ages: A Study of Supercentenarians*, Society of Actuaries. [16]

Geronimus, A. et al. (2019), "Weathering, Drugs, and Whack-a-Mole: Fundamental and Proximate Causes of Widening Educational Inequity in U.S. Life Expectancy by Sex and Race, 1990–2015", *Journal of Health and Social Behavior*, Vol. 60/2, pp. 222-239, https://doi.org/10.1177/0022146519849932. [11]

Israeli Association of Actuaries (2018), *Report of the Mortality Research Committee of the Israel Association of Actuaries on Mortality Improvements in Israel*. [18]

OECD (n.d.), *Life expectancy at 65* (indicator), https://doi.org/10.1787/0e9a3f00-en. [13]

OECD (n.d.), *Life expectancy at birth* (indicator), https://doi.org/10.1787/27e0fc9d-en. [1]

OECD (2019), "Coverage of funded and private pension plans", in *Pensions at a Glance 2019: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/983bdeef-en. [15]

OECD (2016), "Fragmentation of retirement markets due to differences in life expectancy", in *OECD Business and Finance Outlook 2016*, OECD Publishing, Paris, https://doi.org/10.1787/9789264257573-11-en. [14]

OECD/The King's Fund (2020), *Is Cardiovascular Disease Slowing Improvements in Life Expectancy?: OECD and The King's Fund Workshop Proceedings*, OECD Publishing, Paris, https://doi.org/10.1787/47a04a11-en. [5]

Pensiones, C. (2015), *Anexo N° 8 Nota técnica construcción tablas CB-H-2014 (hombres), MI-H-2014 (hombres), RV-M-2014 (mujeres), B-M-2014 (mujeres) y MI-M-2014 (mujeres)*, https://www.spensiones.cl/portal/compendio/596/w3-propertyvalue-9531.html. [19]

Tarkiainen, L. et al. (2011), "Trends in life expectancy by income from 1988 to 2007: decomposition by age and cause of death", *Journal of Epidemiology and Community Health*, Vol. 66/7, pp. 573-578, https://doi.org/10.1136/jech.2010.123182. [12]

Wen, J., A. Cairns and T. Kleinow (2020), "Fitting multi-population mortality models to socio-economic groups", *Annals of Actuarial Science*, pp. 1-29, https://doi.org/10.1017/s1748499520000184. [10]

Wilkinson, A. et al. (2019), "Smoking prevalence following tobacco tax increases in Australia between 2001 and 2017: an interrupted time-series analysis", *The Lancet Public Health*, Vol. 4/12, pp. e618-e627, https://doi.org/10.1016/s2468-2667(19)30203-8. [4]

Ye, X. et al. (2018), "At-a-glance - Impact of drug overdose-related deaths on life expectancy at birth in British Columbia", *Health Promotion and Chronic Disease Prevention in Canada*, Vol. 38/6, pp. 248-251, https://doi.org/10.24095/hpcdp.38.6.05. [6]

Notes

[1] Based on standard mortality tables in OECD member countries where available.

[2] Jeanne Calment of France died in 1997 at the age of 122 years and 164 days.

[3] Based on standard mortality tables for pensioners or annuitants in OECD member countries, where available.

5 Policy lessons for the design, introduction and implementation of non-guaranteed lifetime retirement income arrangements

This chapter presents policy lessons for each stage of development of non-guaranteed lifetime retirement income arrangements, from their design and introduction, through to their implementation and continued operation, given experiences in different OECD member countries. Examples of these types of arrangements include Collective Defined Contribution schemes, Target Benefit schemes, and tontines, among others.

There is increasing interest in non-guaranteed lifetime retirement income arrangements as a means to address several of the challenges that pension systems currently face. Increasing life expectancy, ageing populations and low interest rates have led to concerns around the sustainability of traditional defined benefit (DB) pension models. The low interest rate environment has also led to challenges to achieving adequate levels of retirement income, particularly for arrangements offering guarantees. The shift to individual defined contribution arrangements has pushed the responsibilities to make financial decisions and the risks of financing retirement onto individuals, who are often not capable of managing these by themselves.

Non-guaranteed lifetime retirement income arrangements have the potential to overcome these challenges. They can offer a sustainable retirement income solution, as benefits can adjust to match the level of assets available to finance them. Because the arrangements do not provide a guarantee, assets can be invested to earn higher expected returns, increasing the expected retirement income that they can provide to participants. These arrangements can also manage investment decisions collectively, reducing or eliminating the need for participants to make any financial decisions and mitigating some of the behavioural biases that can lead to poor outcomes. These arrangements pool longevity among all participants, allowing individuals to protect themselves from the idiosyncratic longevity risk of outliving their savings, and optimising the level of retirement income they can take over their lifetime.

Nevertheless, there is a lot of confusion about what non-guaranteed lifetime retirement income arrangements are and how they work. This is in part because they go by many different names, including collective defined contribution (CDC) schemes, target benefit schemes, group self-annuitisation schemes, as well as tontines, to name only a few of the terms commonly employed. In addition, these arrangements can also present a wide range of different structures and designs. However, they all share three common features: no guarantees from the provider or any further obligation for them to increase contributions; benefits that can be adjusted up or down in light of investment and longevity experience; and retirement income for life achieved through the pooling of longevity risk of participants. They are therefore all 'non-guaranteed lifetime retirement income arrangements'. This term intends to capture the primary purpose and features of these types of schemes while being inclusive of the many variations in design that exist. Aside from their similarities, their differences in design highlight the wide range of possibilities for these types of arrangements to adapt to different contexts and retirement income objectives.

The successful introduction and implementation of non-guaranteed lifetime retirement income arrangements is challenging, and important considerations need to be addressed at each stage of their development, from their design and introduction, through to their implementation and continued operation. This chapter discusses the practical considerations for the introduction and implementation of these types of arrangements given the experience in OECD countries.[1] It is organised in five sections. Section 5.1 describes how the design of non-guaranteed lifetime retirement income arrangements can align with different policy objectives for retirement income. Section 5.2 discusses issues that policy makers may need to address to create the conditions for these types of schemes to be introduced in practice. Section 5.3 explores some of the practical challenges for the implementation of these arrangements. Section 5.4 highlights elements that are needed for their continued successful operation. Section 5.5 concludes with the policy lessons learned from the examples discussed, and recommendations for jurisdictions considering the introduction of non-guaranteed lifetime retirement income arrangements. Annex 5.A provides country-specific details of examples from OECD countries.

5.1. Design of non-guaranteed lifetime retirement income arrangements

The design of non-guaranteed lifetime retirement income arrangements should align with the policy objectives for the retirement income to be paid by these arrangements, as different designs can further different objectives. While the principle of these types of arrangements seems straightforward, there is a

myriad of ways to structure them, rendering their design rather complex. Indeed, among the examples that exist across OECD countries, no two schemes are designed exactly alike (see Annex 5.A). They can incorporate the savings and accumulation phases of retirement planning in addition to the payment of retirement income, or can solely be a solution to receive retirement income benefits. They can have ownership rights defined on a collective or individual basis. They can have different benefit formulas, either defining retirement income in reference to the member's salary, calculating it using an expected return on contributions, or establishing it in reference to individual pension rights or assets accumulated. Benefit adjustments can also vary with respect to the measurement of the adjustment, the form that the adjustment takes, and to which benefits the adjustment applies. Some arrangements also incorporate a smoothing mechanism to reduce expected income volatility. Additionally, schemes can offer some optionality for members to better personalise the way that they will finance their retirement or to give them some flexibility around their participation in the scheme.

Non-guaranteed lifetime retirement income arrangements can incorporate a variety of combinations of these design features to achieve different policy objectives, although some design choices regarding one component may determine the range of choices available for another. Table 5.1 summarises the different design features that are possible and the corresponding policy objectives with which they are compatible. The remainder of this section discusses these features and their advantages and disadvantages in more detail.

Table 5.1. Design features of non-guaranteed lifetime retirement income arrangements and their compatible policy objectives

	Period	Rights		Reference to define benefits			Basis to adjust benefits		Smoothing mechanism			Optionality		
Objective	**Accumulation**	**Collective**	**Individual**	**Salary**	**Return**	**Assets**	**Funding ratio**	**Profit source**	**Buffer**	**Corridor**	**Recovery period**	**Investment**	**Withdrawal**	**Survivor/death benefits**
Maximize retirement income	X	X		X	X		X			X				
Limit benefit volatility	X	X		X	X		X		X	X	X			
Limit inter-cohort transfers ('equity')			X		X	X		X		X				
Transparency			X		X	X		X						
Simplicity	X		X		X	X	X							
Limit members' decision making	X	X	X	X	X	X	X	X	X	X	X			
Individual flexibility			X			X		X				X	X	X

5.1.1. Role in accumulation of retirement benefits

Non-guaranteed lifetime retirement income arrangements can incorporate the savings and accumulation phases of retirement planning in addition to the payment of retirement income, or can solely be a solution to receive retirement income benefits.

Designing a scheme to cover both the accumulation and payment of retirement income benefits allows for a more integrated approach to financing retirement. The investment strategy can be better aligned with the benefit drawdown strategy, allowing the scheme to optimise investment returns across members over their lifetime and achieve higher expected returns on average. As such, it also offers larger potential to share risks, particularly investment risks, across a broader range of cohorts and generations. Having an integrated scheme can also reduce the need for individual decision making, as the provider can manage both the investment and drawdown strategies for members collectively, without the need for members to choose among options. It can also allow members to have a clearer view regarding the link between their contributions and the amount of retirement income they can expect to receive. Finally, having a larger contribution base may make it easier for the scheme to more quickly gain scale to be more effective at reducing costs and mitigating risk for members.

However, schemes covering both phases can face larger challenges with respect to flexibility and implementation. Having an integrated scheme may impede members' flexibility regarding both portability of rights and risk appetite. It can also be more challenging to ensure that all members – both those contributing and those receiving benefit payments – are treated fairly and that certain groups are not unduly subsidizing others.

In contrast, it is easy to integrate schemes offering a solution only for the payment of retirement income benefits as an additional option for members to take their retirement benefits, particularly in the context of individual defined contribution (DC) plans. In this way, they offer more flexibility as to the settings in which they can be employed. Several jurisdictions have introduced such schemes for the payment of retirement income from individual DC plans. In the United States, TIAA was one of the first providers offering a variable lifetime annuity option for its individual retirement savings plan. Some superannuation providers in Australia have recently introduced lifetime pension options as an alternative to regular withdrawals. A few providers in Canada are also offering lifetime retirement income options.

5.1.2. Ownership rights

Non-guaranteed lifetime retirement income arrangements can have ownership rights defined on a collective or individual basis. The definition of ownership rights can also determine some of the other design features that are available to the scheme, such as the definition and adjustment of benefits.

Having collective rights better allows schemes to take full advantage of the potential benefits that collective management and risk sharing across members can have. Schemes can better optimise the investment strategy for the entire group, taking into account demographics and expected income profiles. It also facilitates sharing investment risk across cohorts, as schemes can use collectively owned assets to smooth benefits over time. Collective plans also tend to limit the need for individual decision making, as investment and benefit payments are the same for all members in the scheme. As benefits are normally communicated in terms of expected retirement income, they also maintain the focus of the scheme on its purpose to provide an income in retirement. However, the way that the schemes share and distribute risks among members is usually not very transparent, and limiting risk sharing across cohorts is more difficult.

In contrast, transparent risk sharing is easier to achieve for schemes having individually defined rights, and it is easier to limit inter-cohort transfers when that is an objective. Individual accounts also allow participants to have a clearer view of how investment and longevity risks impact their benefits to the extent that the gains and losses from these risks are directly credited to their accounts. In addition, it is easier for schemes

with individual ownership rights to offer more optionality, such as investment strategies or withdrawals from the scheme, which often require some valuation of individual rights.

5.1.3. Benefit formula

Non-guaranteed lifetime retirement income arrangements need to establish an initial expected level of retirement income for their participants. Schemes vary in the way that they do this. They can define benefits in reference to the member's salary, calculate them using an expected return on contributions, or establish them in reference to individual pension rights or assets accumulated.

Some schemes choose to define benefits as accumulating a certain percentage of the member's salary per year of contribution. This salary-based formula is normally used within traditional Defined Benefit (DB) pension arrangements. This choice is convenient in a context where the scheme is replacing or being converted from an existing DB arrangement, as it limits the immediate change to expected benefits for members. This has been the approach in in Canada, the Netherlands and the United Kingdom. Another benefit of the salary-based formula is that it maintains the focus of the arrangement on the expected retirement income, reinforcing the objective of the scheme to provide an income, not only to accumulate assets.

Nevertheless, this type of design is practical only when the scheme covers the accumulation phase and when members' rights are defined on a collective basis rather than an individual basis. It also raises concerns of inequity between younger and older generations, as both groups earn the same relative level of expected benefit per contribution made. Because contributions from younger generations have a longer time to accumulate, the younger generations often subsidise the benefits being accrued by the older generations. While this may not be an issue in labour markets where individuals are expected to contribute to the same arrangement over their entire working life, it may create inequity in the case of high labour mobility where younger members may not benefit from the subsidy in the future. Indeed, the Netherlands initially moved from traditional guaranteed defined benefit plans to non-guaranteed plans with the same benefit formula, but now is moving towards plans with individual rights and age-based accrual rates to define benefits. This shift has been in part due to increasing public sentiment that the former design embedded unfair intergenerational transfers, as well as a lack of transparency in benefit adjustments and the operation of the schemes that has led to decreased trust in the system.

An alternative option for arrangements that include the accumulation phase is to define retirement income benefits as a function of the expected return on contributions. This approach is more actuarially neutral than defining benefits as a percentage of salary, and in principle involves no redistribution between younger and older cohorts. Nearly all occupational pension schemes in Iceland have moved from salary-based to age-based accrual formulas using expected returns, first in the non-guaranteed occupational schemes for private sector employees, and more recently in transforming the defined benefit A-scheme for public sector employees to a non-guaranteed arrangement. This approach allows for two possibilities to frame benefits to members. The first way is as a target retirement income resulting from the expected investment return, which can retain the focus on the objective of providing an income in retirement, and is the approach taken in Iceland. The second way is to present benefits as the sum of the accumulated contributions for each individual. This is a more practical approach for schemes aiming to limit any investment risk sharing across cohorts or generations because deviations from the expected investment return could be immediately recognised in the account value for each member, rather than defined as a change to the expected retirement income and spread over time across members. This may, however, put the focus on the amount of capital accumulated rather than on the level of retirement income received.

A final option – and the approach taken for schemes covering only the pay-out phase – is to calculate the initial retirement income in reference to the amount of capital accumulated at retirement. This is calculated by dividing the level of capital by an age-appropriate annuity factor.[2] This approach is actuarially neutral across ages and can also allow for members to adapt their desired income profile by choosing the assumed

interest rate (AIR) to calculate the annuity factor used to calculate the initial income level. Low rates can result in an increasing income profile, while payments calculated using high rates can decrease over time. Going forward, any changes to the retirement income could either reference the level of retirement income or, when rights are defined individually, reference the accumulated capital adjusted to each period.

5.1.4. Benefit adjustment

Perhaps the most complex aspect in the design of non-guaranteed lifetime retirement income arrangements is defining how to adjust benefits. If investment or longevity experience deviates from initial expectations, benefits will have to adjust to restore the arrangement's financial balance. The rules of the scheme must therefore establish how to measure any financial imbalance and then how to distribute any mismatch to members. Some schemes may also opt to implement smoothing mechanisms to reduce the volatility of benefit payments and share some of the investment risk among members. This essentially changes the timing of the distribution of profits or losses to members, rather than realising them immediately in full. Whether rights within the scheme are defined collectively or individually can constrain the options available to adjust benefits, as does how the financial imbalance of the scheme is measured. Table 5.2 summarises the different approaches.

Table 5.2. Approaches to adjust benefits

Definition of rights	**What** is the financial imbalance of the scheme?	**How** are participants' benefits adjusted?	**Which** benefits are adjusted?	**When** are benefits adjusted?
Collective or individual	*Funding Ratios*: Measure the difference between assets and expected liabilities	*Proportionally*: Individual benefits or rights are adjusted by the percentage of funding mismatch	1) pensions in payment; 2) past accrued rights; 3) the rate of future accrual	1) regularly, or 2) delayed via smoothing mechanisms: a) collective buffers; b) funding corridors; c) recovery periods
Individual	*Profit* Source: Measure the actual investment and longevity experience compared to assumptions	*Individually*: Adjust individual rights according to investment and longevity experience	1) account value and/or 2) payout factor via an adjustment to the return and/or mortality assumptions assumed	

What: measuring the financial imbalance of the scheme

The measurement of the financial position of the scheme is necessary to determine whether there is a funding mismatch and if benefit adjustments are necessary. This measurement can take a collective view based on overall funding levels, or a more granular view based on the exact sources of gains and losses.

Funding ratios can indicate the financial position of a scheme when measuring the funding position on a collective basis. The calculation of this metric is simply the assets accumulated in the scheme divided by its expected liabilities, with the latter calculated on the basis that the expected retirement income benefits of members will be paid over their lifetimes.

An alternative to measuring the financial position of the scheme by calculating a funding ratio is to measure its performance against the assumptions used to calculate the expected benefit liabilities, namely the investment return (discount rate) and longevity experience (mortality assumptions). Taking this approach allows for the decomposition of gains and losses by their source and on an individual basis rather than only on an aggregate basis.

How: formula to adjust participants' benefits

The scheme must determine how to distribute the calculated financial gains and losses to the participants. The options available depend on the methodology used to assess any financial imbalance. If based on a

comparison of actual and expected experience, adjustments can vary by profit source, which may include individual risk profiles. If based on funding ratios, the benefit adjustment is proportional.

When adjusting benefits by profit source, gains and losses can be distributed in a way that minimises risk transfers across cohorts by allowing adjustments to vary by demographic profile. This is technically fairer, particularly in the case of longevity risk, because longevity risk exposure varies across demographic characteristics such as age and gender that have different mortality risk profiles. Passing longevity gains and losses equally to all members in a proportional manner means that younger members would benefit more because they have lower mortality and can expect to be in the scheme for longer. To minimise any value transfer across cohorts, the distribution of longevity gains could instead be a function of the individual member's probability of dying during the period (Fullmer, 2019[1]). The Premium Pension in Sweden takes this approach, adjusting participants' accounts directly with mortality gains that depend on the participants' age. The more granular the mortality rates used, the less the scheme transfers longevity risk across members. For example, mortality rates could also depend on income, which would increase the relative mortality gains that lower socio-economic groups receive. Conversely, unisex mortality assumptions could be used to eliminate relative differences in payments across genders.

However, proportional benefit adjustments based on funding ratios may be preferred to technical fairness in order to make the scheme more practical to implement and easier for participants to understand. Making the same proportional adjustments for all participants is easier to administer. In addition, participants cannot be expected to understand the formulas behind a differentiated distribution of longevity gains, and are likely to perceive a proportional adjustment that is equal for all participants as fair because everyone is treated the same.

Which: type of benefit adjusted

Collectively defined arrangements can adjust three types of benefits: pensions in payment, past accrued rights, and the rate of future accruals. Pensions in payment can further distinguish between base benefits – or the initial benefit received – and ancillary benefits, or additional increases to benefits such as indexation. Adjusting all types of benefits simultaneously will result in smaller overall adjustments, as the funding risk is then spread across all members, and results in more equitable treatment of all. However, schemes could also take the view that ancillary benefits should be reduced before other types of benefits are adjusted, as is the current approach in the Netherlands, for example.

For individually defined arrangements, benefit adjustments can take a retrospective or prospective approach. Retrospective approaches will adjust benefit payments or credit the account value directly in light of actual experience (e.g. as described in Price and Ingles (2021[2]) and Fuentes et al. (2022[3])). Prospective approaches will adjust the assumptions used to calculate the benefit payment, which is most commonly an annuity factor calculated based on assumptions for expected future investment returns and mortality experience.

The approach to prospective adjustments is normally separate from retrospective adjustments. For example, the Premium Pension in Sweden disaggregates retrospective adjustments between investment and longevity experience and credits them to individual accounts, but any prospective adjustment to the pay-out factor is the same for all participants, even though individuals may invest in funds with very different risk profiles. In Denmark, providers do not always make retrospective adjustments for longevity experience, but rather only adjust benefits prospectively through any changes to the assumption used to calculate the annuity factor used to calculate payments.

When: timing of benefit adjustment

The timing of benefit adjustments is closely related to the potential volatility of retirement income payments within a non-guaranteed lifetime retirement income arrangement. The timing of adjustments can relate to

their frequency as well as to the extent to which profits and losses are fully distributed to participants at the time they occur.

For the sake of practicality, adjustments are normally administered with the same frequency and timing for all participants, and are not necessarily done for every payment period. This may result in technical inequalities in some cases, for example for individuals joining the scheme just before a benefit adjustment occurs. Lags in adjustments could also result in delays to benefit adjustments that could reduce value for older cohorts in particular. Indeed, the Premium Pension in Sweden is considering increasing the frequency of mortality credits to individuals' accounts in order to allow participants to realise gains sooner, as the current lag can have a particularly significant impact on the pension level for very old participants.

To shield members from frequent or large benefit reductions and reduce the volatility of retirement income payments over time, the arrangement may also incorporate a smoothing mechanism that effectively delays the distribution of gains and losses further in order to smooth some of the investment and longevity risk over time and across cohorts. Arrangements implementing smoothing mechanisms normally define at least a portion of the rights on a collective basis, as the assets held to smooth losses cannot be owned individually. Such mechanisms include collective buffers or reserves, funding corridors, and recovery periods.

Collective buffers or reserves are one of the more common mechanisms implemented to protect participants from benefit cuts. They are effectively reserves that require the scheme to have more assets than needed to pay expected benefits. This prevents it from fully distributing financial gains in order to smooth the release of profits or avoid a reduction in benefit levels following a period of limited financial losses. Collective buffers can shift some value to future cohorts, who may be able to benefit from the buffer at the expense of current beneficiaries who must build up or maintain a positive buffer.

Funding corridors allow for some deviation from 100% funding in both directions to avoid having to frequently change benefit levels. The design could combine duration constraints with the thresholds for acceptable deviation to make sure any funding mismatch does not become more permanent. For example, schemes in Iceland must adjust benefits if the funding ratio deviates by more than 10% from full funding, or when it deviates by more than 5% over five consecutive years. Because deviations are limited and can go in both directions, funding corridors do not normally result in significant value transfers across cohorts.

Recovery periods allow for prolonged periods of underfunding provided that the scheme can realistically achieve full funding within a given timeframe. Recovery plans often require the approval of the regulatory body or supervisor. This can delay any benefit cuts or spread necessary cuts over time. However, these types of measures tend to shift value to current beneficiaries, as future beneficiaries then face a larger risk of benefit reductions.

While designing arrangements with a smoothing mechanism can help to reduce the short-term volatility of the retirement income that participants will receive, it will generally increase the inter-cohort or intergenerational risk sharing within the arrangement. Furthermore, delaying benefit adjustments in the short-term may lead to a higher risk of larger benefit cuts down the road to restore funding levels.

As such, the decision to incorporate a smoothing mechanism to limit benefit volatility is closely linked to considerations around fairness. For example, the Royal Mail scheme in the United Kingdom has maintained a flat benefit formula based on salary replacement, but it has opted to not incorporate a collective buffer to smooth benefits in part to limit the intergenerational risk sharing in the scheme.

Nevertheless, there may be a policy objective for non-guaranteed lifetime retirement income arrangements to offer more benefit stability, particularly in a context where there is a strong preference for guarantees. In many jurisdictions having a history of guaranteed occupational arrangements, there is a cultural preference to retain a certain level of security even when moving to a non-guaranteed arrangement. In its initial transition to non-guaranteed collective defined contributions schemes, the Netherlands required providers to maintain a risk-based capital buffer to protect benefit levels. Even in its transition to a more

individualised system, they have retained an option to incorporate a collective reserve to smooth benefits. In Quebec, the Provision for Adverse Deviation (PfAD) required for defined benefit plans is also required for target benefit arrangements. While German legislation allows for a range of different designs, the schemes currently being introduced incorporate a capital reserve. In Japan, risk sharing arrangements were introduced in part as a way to counter the investment risk aversion of individuals. Plan design therefore provides for more benefit security through a risk-based collective buffer to appease this risk aversion while allowing for less conservative investment strategies to earn higher returns.

In other jurisdictions with a longer history of individual defined contribution plans, the potential volatility of retirement income poses less of a problem, so smoothing mechanisms may not be as desirable. In Australia, many individuals withdraw the minimum required amount from their superannuation accounts, which can already lead to volatile retirement income. Compared to this solution, non-guaranteed lifetime retirement income arrangements can allow individuals to withdraw higher amounts with potentially lower downside, without the risk of outliving their savings.

The extent to which public pension benefits are means tested may also increase the potential appetite for volatility, as these benefits could at least partially offset any reduction in retirement income from a non-guaranteed arrangement. This is the case in Iceland, which incorporates a funding corridor into its design but does not impose an additional buffer. This is also the case in Australia and Denmark, which could help increase the acceptance of volatility of retirement income from these types of arrangements and reduce the need to incorporate any additional smoothing mechanism.

5.1.5. Optionality

Non-guaranteed lifetime retirement income arrangements can offer some optionality for members to better personalise the way that they will finance their retirement or to offer them some flexibility around their participation in the arrangement. Nevertheless, because the nature of these arrangements is to pool risks among members, the optionality that they offer is normally quite limited so they can still benefit from risk sharing and ensure that the scheme remains equitable.

Some schemes may offer members the ability to select their investment strategy to better align with their risk appetite and preferences. This is primarily an option during the accumulation phase due to the complexity of equitably adjusting benefits across different investment strategies, and there is usually a limited number of fund options for the members to choose from. However, the Premium Pension in Sweden also provides the option to select the investment strategy during pay-out.

Schemes may also allow members to withdraw their funds, but this option must remain limited during the pay-out phase when the returns from longevity pooling are the highest. Otherwise, non-guaranteed lifetime retirement income arrangements will not be able to offer retirement incomes that are much better than what members could achieve investing on their own in individual accounts. When offered, withdrawals are usually only allowed up to a maximum age, or a limited time following retirement. Schemes can also allow for withdrawals of limited amounts to provide members with a certain level of liquidity. Offering this type of option for members to withdraw their funds can be an effective way to help them overcome any hesitancy to relinquish control of their assets during their retirement. Once they experience the benefits of receiving a regular retirement income, they should be less likely to want to opt out of the scheme. Liquidity options can also give them the assurance that they will be able to meet unexpected expenses if they arise.

Schemes may additionally allow members to ensure that their survivors will receive some benefit if they die before expected. One type of benefit is a joint lifetime retirement income, so the member's spouse can continue to receive a retirement income benefit even if the member passes away. This option will reduce the level of the initial income, but the benefits of longevity pooling remain. Another option can be a lump-sum benefit upon death. The amount of this option should be limited, as this can significantly reduce the benefits of longevity pooling. One way to structure a lump-sum death benefit is as a return of premium

guarantee, so the beneficiary receives the difference between the premium paid and the sum of the retirement income benefits already paid out. The Lifetime Pension offered by Australian Retirement Trust offers a return-of-premium guarantee option.[3] This structure still allows for the pooling of longevity risk at the oldest ages when the benefits are most significant. Offering death and survivor benefits can help to overcome demand-side obstacles, particularly for arrangements covering only the pay-out phase, as it helps to mitigate the loss aversion that members may have when facing the risk of losing all of their assets if they die earlier than expected.

5.2. Necessary conditions for the introduction of non-guaranteed lifetime retirement income arrangements

The introduction of non-guaranteed lifetime retirement income arrangements requires policy makers to ensure that adequate frameworks are in place that establish the legal boundaries and rules relating to their operation as well as to encourage take-up. Their introduction may require new legislation, and policy makers need to consider how existing regulations may apply to the arrangements. Additional measures may also be needed to incentivise the establishment of or the participation in the arrangements.

5.2.1. Legislative and regulatory framework

The legislative and/or regulatory framework may require changes or adjustments in order to accommodate the introduction of non-guaranteed lifetime retirement income arrangements. There first needs to be a strong reason or policy objective to initiate such changes. Several jurisdictions have decided to introduce new legislation to allow for the introduction of non-guaranteed arrangements. The extent of the changes required depends on the legislative framework in place. Regulators have also had to consider the application of existing rules to the new arrangements, even when no new legislation has been needed. Generally, jurisdictions have varied widely in their approach to legislation and the level of detail prescribed.

Sustainability concerns are often the main driver of legislative change to introduce non-guaranteed lifetime retirement income arrangements. New Brunswick introduced the legislation for Shared Risk Pension Plans following increasing financial pressures on defined benefit plans coming from the challenging financial environment, increasing longevity, and maturing demographics. Similarly, target benefit plans in the paper and pulp sector in Quebec were introduced in response to the financial challenges of the industry following the general move away from paper, and the result of union efforts to convince employers and lawmakers to allow them. Recent legislation in Quebec allowed target benefit plans more broadly, following the expansion of a law requiring equal compensation for equivalent employees to include pension benefits. This would have likely led more employers to abandon their defined benefit plans completely in favour of individual defined contribution given sustainability concerns, and allowing target benefit plans instead was an acceptable compromise for both employers and unions. The need for a sustainable compromise also drove the introduction of new legislation in the United Kingdom. Royal Mail was struggling to finance its defined benefit scheme, which it had already closed to new members. When it considered closing the scheme also to future accruals for existing members, the unions approached them to find an alternative solution. The employer and unions together pushed the government for the needed legislative change, which then had bipartisan support as it represented the interests of both parties.

Additional policy objectives have driven the introduction of non-guaranteed schemes in some jurisdictions. In Germany, the government introduced new legislation to introduce the social partner plans in part to try to increase the coverage of occupational pensions. Smaller employers and blue-collar employers in Germany are less likely to offer a pension plan to their employees, and the new social partner schemes offer an alternative to guaranteed schemes that may be easier for these employers to manage. In Iceland, a main objective for the conversion of the public sector defined benefit scheme was to harmonise the schemes across the public and private sectors, and thereby increase flexibility in the labour market to move

between the two sectors. In the Netherlands, the proposed legislative change to move to a system based on individual accounts aims to make the system more fair and transparent in the context of increased mobility of the labour market, to improve trust in the system, and to make the system more resilient to financial shocks.

Nevertheless, even when there is broad agreement that changes are needed, agreeing upon what those changes should be can be a lengthy process. In Quebec, employer and employee representatives discussed for two years before agreeing on a legal proposal. In the Netherlands, it took ten years before the social partners, government, and pension industry representatives could agree on the design of the new system, for which they are currently developing legislation. Lengthy discussions with social partners also took place in Germany before the introduction of legislation, which provided the boundaries of the new plans' design. Subsequent negotiations to agree on the introduction of the new type of plan and the specific details of the plans in collective agreements have also taken a long time. The first plans were implemented in 2022, four years after the legislation passed.

To allow for the introduction of non-guaranteed lifetime retirement income arrangements, several jurisdictions have had to modify or introduce new legislation to allow occupational arrangements to be able to reduce retirement income benefits. Most of the existing pension legislation in Canada prohibited any modification to accrued benefits (Deraspe and McGlashan, 2016[4]). To overcome this limit, New Brunswick established a regulatory framework for Shared Risk Pension Plans in 2012 under the existing Pension Benefits Act that allowed for benefit adjustments. Quebec initially introduced legislation allowing target benefit schemes only for the paper and pulp sector, but in 2020 allowed these plans to be introduced more widely by modifying the existing legislation for occupational defined benefit plans (National Assembly of Quebec, 2020[5]). Japan introduced risk sharing pension plans under the existing legislation for defined benefit plans, but introduced new funding requirements specifically for those types of plans. In the United Kingdom, existing legislation only allowed benefit reductions with member consent, effectively requiring the employer to go bankrupt before they could reduce benefits. They therefore modified the legislation in 2021 to allow for the introduction of "Collective Money Purchase" (CMP) schemes that regularly adjust benefits to align with the assets available in the scheme. Germany introduced new legislation in 2018 to allow employers to establish Social Partner "Pure DC" schemes, as existing legislation required occupational plans to provide guarantees. Iceland passed a new bill to convert the public sector guaranteed defined benefit A-schemes to a collective defined contribution scheme with age-dependent accrual rates in line with the private sector schemes.

Other types of legislative or regulatory provisions may be needed to allow for the offer of non-guaranteed lifetime retirement income arrangements outside of the purview of occupational pensions. In Ontario, the Securities Commission has granted exemptive relief for one scheme introduced as a mutual fund so that it can redeem the remaining units of deceased participants at less than their value to allow for longevity pooling. However, the legislative provision requiring that the unit price and distribution value must be the same for all members has led the scheme to group participants by cohorts to ensure fair pricing. This reduces the size of the longevity pools, making them less effective as a lifetime retirement income solution (MacDonald et al., 2021[6]). In the United States, the SECURE Act passed in 2019 could facilitate further development of non-guaranteed arrangements because it doesn't require that a lifetime retirement income be provided with insurance (Hadass et al., 2021[7]).

A few jurisdictions have not required any legislative change to allow the introduction of non-guaranteed schemes. Regulators in Saskatchewan determined that the existing legislative framework was adequate for the introduction of target benefit plans (Deraspe and McGlashan, 2016[4]). Denmark has not required any new legislation either, and has allowed providers significant flexibility in designing non-guaranteed products offered as occupational plans. They have taken an approach more focused on supervision to ensure that the plans are suitable and fair to participants and that members understand the inherent risks in participating.

Even where no legislative change is needed, regulators and supervisors still need to consider how the existing rules should apply to the new arrangements. For example, regulation may require prudence in setting the assumptions used for valuations. However, overly conservative assumptions to establish retirement income levels are not necessarily beneficial for members in the context of non-guaranteed lifetime retirement income arrangements, as this could reduce the retirement income that they are able to take and shift some value to future cohorts at the expense of current pensioners. Profit sharing rules may also need further consideration, as in this context profits from beneficial investment and longevity experience in principle belong to the participants. Limited solvency capital requirements could also potentially apply to such schemes, even if no guarantees are provided. These could be linked to operational risk, for example, or limited insurance risk to the extent that benefit adjustments do not fully reflect realised longevity experience.[4]

Regulators and supervisors may also consider the rules around the wind-up of the scheme in the case that the provider becomes insolvent or needs to close the scheme. In principle, these types of plans will not be eligible for coverage by any pension protection scheme in place, as there are no guarantees. The assets remaining in the plan, however, belong to the participants. They could therefore be divided among the surviving members in a proportional manner for collective schemes, or for individual schemes members could simply receive their remaining account value. Nevertheless, this is not an ideal solution given that the primary objective of these arrangements is to provide a retirement income for life. As such, where possible in more developed markets, regulators may want to consider having a mechanism in place for closing schemes to be absorbed into other similar schemes in operation.

Where relevant, the application of competition regulation may present a particular challenge, since there may be an incentive for providers to artificially inflate the initial retirement income paid using aggressive assumptions in order to attract business. This approach would eventually require a reduction in future retirement income payments to ensure the financial balance of the scheme, which may not be initially transparent to participants. Rather than competing on the assumptions used for valuation and the calculation of the retirement income, competition between providers should centre on product design and services provided. Clear rules around a scheme's governance and assumption setting can help to address this concern.

Another challenge in introducing a new regulatory framework is balancing the timing of the development of regulations with the development of the market. While Quebec has introduced needed legislation to allow providers to offer target benefit plans, they have taken a slower approach to the development of regulations. They prefer to develop the regulatory framework once providers have shown more interest in developing schemes and have concrete proposals for their implementation. However, this has contributed to some uncertainty with respect to the boundaries of the obligations of employers, for example, which has led to some reluctance to move forward. In contrast, regulation developed in the United Kingdom is quite detailed, with the goal to be adapted to a more developed market. Nevertheless, this approach could hinder further development of the market if the rules are not flexible enough to adapt to the different contexts in which these schemes could be initially introduced.

More generally, the level of detail prescribed in the legislation and regulation varies widely across jurisdictions. Quebec has adapted the legislation applicable to DB plans to accommodate target benefit plans, and the solvency rules requiring plans to have a risk-based provision for adverse deviation (PfAD) and rules around the distribution of any surplus still apply. Japan has also adapted its DB legislation to incorporate risk sharing pension plans, but new regulations detail the specific funding requirements for the new plans and how benefits should be adjusted. Similarly focused on risk-based buffers, the legislation in New Brunswick is very detailed with respect to the risk management of the plans, and defines stochastic risk limits that the plan must meet. In Iceland, legislation and regulation lay out the parameters that schemes must use for setting contributions and valuation, namely the minimum target replacement rate and the discount rate, as well as the thresholds for benefit adjustment. Legislation for the Premium Pension in Sweden and the proposed legislation for the new occupational contracts in the Netherlands both outline

the general design of the arrangements and funding rules. However, the formula and assumptions used to distribute gains and losses to members is left up to the scheme. German legislation for the Social Partner DC schemes provides the general boundaries of plan design and limits to funding, but leaves many of the details open for negotiations among social partners in collective agreements. Legislation in the United Kingdom focuses on the processes that schemes need to follow, and covers topics such as governance, IT capabilities, the role of the actuary, and communication to members.

Legislation sometimes requires plan design and benefit adjustments to treat all members fairly, though without defining precisely what is meant by fairness. New Brunswick stipulates that no cohort should unduly subsidise another, and Quebec requires equitable treatment of members to avoid disputes between active and non-active members. The Netherlands requires the board to weigh members' interests in a balanced manner. Such clauses aim to avoid situations where certain groups are favoured at the expense of others, such as maintaining the benefits of current pensioners at the cost of an increased risk of cuts for future pensioners. Nevertheless, different groups can interpret the concept of fairness in a variety of ways, and enforcing such provisions would likely be difficult. Indeed, benefit adjustment decisions in the Netherlands have lacked transparency and have not always affected active members and pensioners equally. In addition, plans in both Canada and the Netherlands incorporate the use of collective buffers, which themselves have implications for intergenerational transfers that may or may not be viewed as fair.

5.2.2. Incentives to establish and participate in the arrangements

There need to be adequate incentives for providers to introduce non-guaranteed lifetime retirement income arrangements and for individuals to participate in the arrangements, otherwise the market will struggle to develop. Some jurisdictions have approached this with mandates for participation. In others, concerns around the sustainability of defined benefit plans have led to the joint support of both employers and the unions. While the legal or regulatory framework intends to encourage the arrangements in several jurisdictions, there is often still a lack of incentives for providers, or potentially even disincentives for them to establish an arrangement. Individuals may also need incentives to participate in the arrangements where individual participation is voluntary. Jurisdictions have done this through financial incentives and, for retail products, with design features that address some of participants' behavioural biases.

The easiest way to promote the offer and development of non-guaranteed lifetime retirement income arrangements is by mandating participation. In Sweden, all employees must contribute to the Premium Pension, for which one of the two pay-out options is a non-guaranteed lifetime income. In Iceland, all employees must contribute to their multi-employer's scheme. In the Netherlands, employees must participate in the available plans agreed in collective agreements based on the plan design defined in legislation. When offered by the employer, the participation of employees is also required in Denmark, though employers generally have more choice available in the design of the plan they offer.

Some jurisdictions have managed to shift towards non-guaranteed lifetime retirement income arrangements as a result of negotiations between employers and unions driven by concerns around the sustainability of specific defined benefit schemes. However, because negotiations tend to be focused on specific schemes, the market has not necessarily developed more broadly. This was the case for the paper and pulp sector in Quebec, and Royal Mail in the United Kingdom, where both employers were not financially viable enough to be able to continue to back the guarantees for their defined benefit plans. In contrast, the transition to a non-guaranteed lifetime retirement income arrangement for public sector schemes in Iceland was intended as a means to better align the compensation structures (both salaries and pension benefits) across public and private sectors and make the labour market more dynamic, for which there had been a consensus of public opinion. There, the majority of employers already offered non-guaranteed retirement income arrangements. In negotiations with the unions, the government succeeded in converting the A-scheme defined benefit plan into a collective defined contribution plan by offering to provide a capital injection to bring the plan to full funding.

There are also a few examples of plans that have been successfully introduced through the initiative of the employer or provider as a pay-out option for individual defined contribution plans for specific employed populations. The plan for employees at the University of British Colombia was one of the first of these types of schemes in Canada, and has been successfully running since the 1970s. In the United States, The Teachers Insurance and Annuity Association of America (TIAA) introduced a similar plan in the 1950s in response to rising inflation that eroded the value of the retirement savings of their members.

Nevertheless, incentives to set up a plan – particularly one covering the accumulation phase – are less obvious for employers who have already shifted to individual defined contribution plans or who do not currently offer a pension plan to their employees. Bearing the cost of implementation and taking on the additional administrative and organisational burden of providing a non-guaranteed lifetime retirement income arrangement is likely not an attractive solution to an employer in either situation. One motivation to do so could be the potential gains in the financial well-being of employees, as non-guaranteed schemes could help them to be better prepared for and financially protected in retirement. As such, the demand for employers to offer such schemes would have to come from the employees themselves. Another potential incentive for employers is the harmonisation of the plans offered to senior employees and recent hires, where the former are covered by guaranteed plans and the latter by individual defined contribution plans.

Jurisdictions are trying different ways to overcome the lack of incentives for providers to establish non-guaranteed lifetime retirement income arrangements. To overcome the lack of incentives and employer take-up in Quebec, one union is proposing to take care of all of the design, implementation costs and administrative burdens if employers agree to set up a scheme for their employees. Employers would only be obliged to provide contributions set at a level to finance the desired benefit levels within certain boundaries, and would not necessarily need to be involved in the management of the scheme. This approach could minimise the disincentives relating to cost and administration that employers have to offer such schemes.

In Germany, the government expects that social partners will drive the introduction of the Social Partner DC schemes. The legislation stipulates that schemes must be established through collective agreements, and that the social partners participate in their governance. Nevertheless, the negotiation process is long, and four years after the legislation passed, the first schemes were implemented only in 2022. The hope is that after these schemes are operational, they will serve as an example for others to follow, which will facilitate the process going forward.

Australia is trying to encourage the development of innovative lifetime retirement income solutions for the superannuation system. It recently passed the Retirement Income Covenant, which obliges trustees to offer a retirement income strategy to their members that helps them to balance the objectives of maximising their expected retirement income, managing the risks to the sustainability and stability of that income, and providing flexibility to access their funds. This could encourage the asset managers to develop non-guaranteed lifetime retirement income arrangements, as they can design these types of solutions to cater to each of the required objectives. In addition, the asset managers would be able to provide these types of products themselves rather than have to collaborate with a life insurer to offer a guaranteed product. Nevertheless, very few providers currently offer products with longevity protection, and providers will still be able to justify offering drawdown solutions. In addition, the development and testing of new products can be an expensive process, so making this investment can be a risky endeavour if the necessary demand for these types of plans to achieve scale is not certain. As such, further development of the market may be contingent on consumer demand.

Strict design and operational requirements imposed by legislation and regulation may also present a barrier to the development of non-guaranteed lifetime retirement income arrangements, particularly for smaller players. The cost of setting up a scheme can be substantial, and can include licensing fees, updating admin systems, costs to meet regulatory requirements, or financing any required buffers. For example, in the United Kingdom, new schemes are required to pay an application fee of GBP 77 000. There will also

be a cost for trustees to familiarise themselves with the legislation and meet the knowledge requirements, as well as other extensive procedural requirements that need to be met, which may deter some providers from establishing a plan. In Japan, sponsors have to bear the additional cost of calculating and financing the required risk buffer for the plans. The amount of the buffer can either be based on a standard formula included in the regulation, or based on a bespoke approach justified to the regulators that aims to protect employees from a benefit reduction with 95% certainty. However, the standard formula typically results in a collective buffer representing a significant proportion of the expected liabilities, and using a bespoke approach to better balance the cost of the plan and employee protection also involves additional cost to develop and justify.

Accounting treatment can be a major incentive for providers to adopt a non-guaranteed retirement income arrangement as a means to relieve financial pressure on their balance sheets. The accounting framework needs to make clear that the providers of these arrangements will be able to realise their potential financial benefits, and not risk any surprises regarding their financial obligations. Indeed, one reason why Royal Mail opted to establish a CDC scheme rather than a conditional indexation plan is the beneficial accounting treatment of the former, as for the latter they were not able to afford the full liability on their balance sheet. Accounting treatment was also one of the reasons that the Netherlands moved to CDC schemes from guaranteed Defined Benefit schemes, as employers do not have to declare CDC schemes on their balance sheet as an accounting liability.

However, not all accounting standards necessarily allow sponsors relief from recognising the accrued expected liabilities of non-guaranteed lifetime retirement income arrangements. The treatment of collective plans under US GAAP accounting standards is unclear. This has proven to be a barrier for US subsidiaries in Japan to introduce a risk-sharing plan for their employees. Similarly, in Quebec some employers have been reluctant to establish a target benefit scheme because of the lack of clarity in how they will be treated under US GAAP, though in practice the regulators and auditors have been open to accepting a DC-type accounting if the rules of the plan indicate a clear transfer of volatility risk to the employees.

In the context of voluntary retail products, some jurisdictions have had to adapt existing tax legislation and financial incentives to specifically accommodate non-guaranteed lifetime retirement income arrangements and provide at least the same incentives for these products as for other forms of retirement income. In Australia, the superannuation tax concessions applied only to regular withdrawals from a superannuation account. In 2017, the government therefore extended this tax concession to include other products that meet three criteria: regular lifetime benefits; benefits that are not unreasonably deferred; and limited withdrawals and surrender values. In 2019 they introduced an additional incentive to count only 60% of the income from products with lifetime income streams toward the means test for public pension benefits. Canada also amended its tax regulation in 2021 to allow variable payment life annuities (VLPAs) to be offered within registered individual defined contribution plans and Pooled Registered Pension Plans (PRPP). However, only a small percentage of Canadians are covered by these plans, and this amendment did not extend to other types of individual retirement savings vehicles (MacDonald et al., 2021[6]).

Nevertheless, financial incentives are not always sufficient to promote demand for retirement income products that pool longevity risk, as this requires individuals to relinquish their retirement savings to the provider. Providers of retail products have therefore typically added additional features to make them more attractive to individuals. Australian Retirement Trust's 'Lifetime Pension' comes with a return-of-premium guarantee that the initial premium will be paid back, either through income payments made or via a payment to beneficiaries of the unpaid difference upon death. In addition, it allows individuals to cancel their contract within the first six months if they decide that the product is not right for them. TIAA's variable annuity option in the United States also allows a cooling off period for participants to change their mind about the product, and the Longevity Pension Fund offered by Purpose in Canada allows participants the potential to access their funds in case of a liquidity need. These features aim to appease the loss aversion that individuals may have in handing over their savings to the provider by ensuring that they will be able to get at least some of that capital back.

5.3. Practical challenges for implementation

Institutions looking to establish a non-guaranteed lifetime retirement income arrangement must consider the feasibility and viability of doing so. These arrangements will need to be integrated within the existing institutional and administrative frameworks. Legal constraints may limit the options that are available to employers to be able to convert existing schemes, or where feasible, conversion can involve significant challenges to implement. Providers also need to consider what is feasible in light of the expected cost and scale of the new arrangement.

5.3.1. Institutional framework

Existing institutional frameworks for the provision of retirement income have often been able to accommodate the management of non-guaranteed lifetime retirement income arrangements. Indeed, most jurisdictions have been able to rely on existing institutions to organise the provision of these types of arrangements. Occupational arrangements in Demark, Germany, Japan, the Netherlands, and the United Kingdom rely on the same institutions currently providing pension schemes to employees to manage any non-guaranteed arrangements introduced. In Australia, the asset managers participating in the superannuation system during accumulation are also allowed to provide non-guaranteed retirement income arrangements, as they do not involve the provision of guarantees and are therefore not subject to insurance regulation.

The biggest challenge for existing providers, however, will likely be updating their administrative systems to align with the organisation of the non-guaranteed lifetime retirement income arrangement. This will be particularly difficult where providers who have been managing arrangements where rights are defined collectively move to providing arrangements where rights are defined individually. This is currently the case in the Netherlands, and providers will have to completely restructure their administrative systems to be able to manage the transition to the new pension contracts. In contrast, providers already managing individual retirement savings accounts would only need to add an additional administrative layer to manage the longevity pooling. Insurance companies would have the advantage of already having this type of administrative infrastructure in place.

5.3.2. Conversion of existing schemes

Legislation may limit the conversion of existing defined benefit schemes in the context of occupational pensions. In Quebec, legislation prohibits the conversion of past rights accrued in defined benefit plans. Employers can therefore only introduce target benefit schemes for future accruals. In Japan, conversion of a defined benefit plan requires the consent of two-thirds of individual employees unless the plan sponsor has financed the risk margin by at least 50%, in which case, the conversion only requires the consent of the employee representative representing the majority of employees. In the Netherlands, the conversion of the existing system to individual contracts will be contingent on collective agreements.

The design of existing schemes offered to employees may influence any preference for conversion. Conversion is relatively simple for employers moving from a defined benefit arrangement to a non-guaranteed lifetime retirement income arrangement with a similar benefit formula, as they should be able to manage the scheme in the same vehicle. This was the approach in the Netherlands when schemes converted from guaranteed defined benefit to collective defined contributions schemes. This is also commonly the approach for employers in Japan. However, if employers have both defined benefit and defined contribution plans, and they are seeking to harmonise the retirement benefits of employees, it may be preferable to freeze contributions to existing schemes and direct only future accruals to a non-guaranteed scheme. Royal Mail in the United Kingdom opted for this approach.

However, employers may have an incentive to convert existing arrangements even when implementing a different benefit structure and design for the new scheme. One motivation can be the administrative difficulty of managing multiple pension schemes. The government and the municipalities converted the public sector defined benefit A-scheme in Iceland to a non-guaranteed scheme with age-based accrual rates for all members under 60, in part to maintain a single scheme. This is also a reason to convert existing schemes in the Netherlands to the new individual contracts, as having a dual administrative system to manage both types of plans would be difficult and costly.

There are several practical challenges, however, when converting existing arrangements to non-guaranteed lifetime retirement income arrangements, particularly for collectively defined schemes. When converting guaranteed defined benefit plans, any funding deficit must be addressed to ensure the financial balance of the new scheme. This will either have to involve cuts of accrued benefits or a capital injection to bring the plan to full funding levels. Iceland took the latter approach in converting its public sector defined benefit plan to a non-guaranteed lifetime retirement income arrangement. They were exceptionally able to finance the scheme rather than cut benefits because they had funds available from the failed banks following the financial crisis.

Another challenge is ensuring that the conversion is equitable for the current participants in the scheme. This is a particular challenge for schemes converting to an age-based accrual formula from one independent of age, because younger members will have been subsidising the benefit accrual of older members, yet will no longer be able to benefit from this subsidy themselves. Iceland addressed this by ensuring that the capital injection to bring the scheme to full funding was sufficient to finance the expected benefits of members based on the former accrual method, effectively ensuring that they would not expect to have lower benefits under the new scheme. The Netherlands plans to reallocate existing assets – potentially along with additional employer contributions – to individual accounts in a way that will correct this subsidisation.[5]

The valuation of accrued rights in these conversion exercises is rather complex and subject to numerous assumptions, however. In addition, these assumptions can change in the time it takes to implement the conversion, which could change the ultimate distribution of outcomes across members. To partially address this uncertainty, the Icelandic Government established an emergency fund in addition to the capital injection whose purpose it is to offset any shortfall coming from the actuarial assumptions, and in particular the mortality assumptions. However, the calculation of the capital injection did not take into account future mortality improvement assumptions, so there was already a known actuarial shortfall in funding. This is currently being addressed, as the mortality assumptions used for the valuation of all schemes will now account for expected mortality improvements.

5.3.3. Required scale

Whether the arrangement is expected to attain sufficient scale will influence whether or not the cost for the development and introduction of these types of arrangements is warranted. As such, high introduction costs may be a barrier for smaller players to offer a non-guaranteed lifetime retirement income arrangement. They may also not be able to achieve operational efficiencies to keep fees low enough to meet regulatory requirements, for example where there is a cap on allowable fees.

Allowing for multi-employer or multi-union plans could help sponsors to achieve sufficient scale, but these come with their own challenges relating to ensuring fairness in design. In light of this, current legislation in the United Kingdom does not allow for establishing multi-employer plans. Ensuring equity is more problematic in arrangements defining benefits in terms of a salary replacement rate independent of age. In these types of arrangements, contribution levels need to take into account any differences in demographic composition to avoid subsidisations across employers. Age-dependent accrual rates, as in Iceland, can mitigate this challenge and limit cross-subsidisation.

Sufficient scale is also required from an operational perspective in order to avoid excessive volatility of benefits coming from longevity. This is a particular challenge for individual tontine-type arrangements, though these can still be viable with less than 1 000 participants. One solution to this challenge that a provider in Australia is implementing is to simply insure the longevity risk of the arrangement, which effectively outsources the longevity pooling mechanism to an insurer. While the arrangement then technically provides a guarantee, other aspects of its operation are comparable to the non-guaranteed arrangements discussed here. Indeed, this structure is very similar to the products available in Denmark, which tend to only make prospective adjustments to account for changes in longevity experience, implying implicit protection against realised deviations in longevity experience and the resulting benefit volatility.

5.4. Elements for long-term success

In order to be successful, non-guaranteed lifetime retirement income arrangements need to ensure that they have a proper governance framework and that the relevant stakeholders understand their design and operation. These aspects are especially important to instil trust in the arrangements and thereby encourage continued uptake and participation.

5.4.1. Governance

The need for a good governance framework is not unique to non-guaranteed lifetime retirement income arrangements, but it is particularly crucial for their success. Most importantly, the governance framework should ensure a balanced representation that considers the interests of participants, that the assumptions used to calculate benefit payments are appropriate, and that the arrangement is managed in a transparent and independent manner.

As the participants in non-guaranteed lifetime retirement income arrangements are the primary bearers of risk, many schemes ensure their representation in the governing body. In Japan, risk sharing schemes must have at least one employee representative, but in practice they often include more. Quebec also requires that all parties be represented in the governing body. In Iceland, representation is split between employers and employees, often equally. In the Netherlands, the representation of participants in the management of the scheme is ensured via representation within the board or an internal body to which the board justifies its decisions. In Germany, while legislation does not specify that social partners be a part of the governing body, it does say that they should participate in its implementation and governance, and therefore implicitly ensures that employee interests are represented.

While a few arrangements allow independent members to be part of the governing body, this is usually not a strict requirement. In Quebec, however, plans must have at least one independent member of the governing body. Risk sharing plans in Japan can include external members such as consultancies in plan governance, but this is not a requirement. While Iceland does not currently include independent members, there is some discussion around whether this could be beneficial to help mediate discussions between employer and employee representatives and provide an external perspective.

Some jurisdictions emphasise the competency of trustees to manage the scheme and make informed decisions in the best interests of members. For example, the Draft Code of Practice for Collective Money Purchase schemes in the United Kingdom lays out detailed fit and proper requirements, and requires members to have training and knowledge on pensions. In Iceland, members are required to pass a proficiency exam.

It is important for the governance framework of non-guaranteed lifetime retirement income arrangements to ensure the appropriateness and independence of the assumptions used for the valuation and calculation of benefits. The assumptions used determine the level of benefits and required adjustments, and can therefore have a significant impact on participants' outcomes over the long term.

The governing body is responsible for approving assumptions used in some jurisdictions. This is the case in Quebec, however only the sponsor can make amendments to the scheme, within limits. In Australia, the Australian Retirement Trust's board decides on the product features and assumptions for their Lifetime Pension product. While product managers can credit individual accounts in real time, they must have approval before changing any assumptions. In the Netherlands, the governing body has full control over how to use collective assets to smooth benefits, as long as they remain within the funding limits established in legislation.

In several jurisdictions, the governing body relies on the assumptions advised by experts to ensure their independence. For the Premium Pension in Sweden, the actuaries suggest the assumptions that the Director of the Pensions Agency must then approve. In Iceland, the actuarial association develops the mortality assumptions that schemes use for valuations. Boards can nevertheless adjust accrual tables if needed, which establish the level of expected benefit from contributions by age. In Denmark, some providers rely on assumptions developed by external expert committees for the expected risk and return of different asset classes.

Requirements can also be in place to ensure that the governing body makes decisions in the best interests of members, though this is usually a general requirement for all types of pension arrangements. Scheme managers in Quebec are subject to fiduciary obligations, as are managers of plans in the United States operating in the context of occupational pensions under ERISA's remit. Australia requires that the boards of superannuation funds regularly assess whether trustees are making decisions in the financial interest of participants. Regulation in the United Kingdom requires clear lines of accountability for each function and a regular monitoring of risk, and trustees must demonstrate the financial sustainability of the plan.

The governance framework also needs to ensure transparency in the operation of schemes in order to promote trust in the arrangements and members' willingness to participate. Transparency is particularly important regarding the rules of the arrangement and how benefits will be adjusted. To this end, legislation for the Shared Risk Pension Plans in New Brunswick requires plans to establish detailed criteria regarding when and how it will adjust different types of benefits, and these plans must be executed following a triggering event. In contrast, the Boards of schemes in the Netherlands currently have significant discretion in deciding how benefits will be adjusted and for which members those adjustments will apply. This has contributed to a decline of trust in the system.

Transparency around the assumptions used is also an important tool to manage some potential conflicts of interest. In Iceland, for example, the discount rate of 3.5% is defined in regulation and has not been updated since 1997. Neither the employers nor the employees have any real incentive to adjust this rate to the extent that it could lead to potential downward adjustments to benefit levels. Nevertheless, the validity of this assumption is regularly debated within the pension community. Transparency can also help to manage potential conflicts of interest arising from competitive pressures or a lack thereof. For example, providers may have an incentive to set assumptions resulting in higher initial retirement incomes to attract participants, then lower benefits when participants are no longer able to change providers or exit the plan.

5.4.2. Communication

Non-guaranteed lifetime retirement income arrangements can be complex and difficult to understand, so significant communication efforts are needed to ensure that stakeholders understand how they operate and their inherent benefits and risks. Communication can take an educational focus to explain generally how the arrangements work or how reforms to introduce the arrangements will impact participants. More nuanced communication may be needed explain to individuals the benefits of longevity pooling. Individual statements will need to provide more personalised communication on individuals' expected benefits and the potential for their adjustment.

In some jurisdictions that have introduced non-guaranteed lifetime retirement income arrangements in an occupational setting, communication efforts have involved educating the employers and employees about the main features of the arrangements and their role within the pension system as a whole. In Japan, some employees often do not understand how the pension system works and how the public pension and their occupational scheme complement each other, because they do not necessarily have to be actively involved in either. Some employers have therefore organised seminars to educate employees on the whole pension system as a first step to helping them to understand any non-guaranteed arrangement being introduced. It has also been necessary to educate Human Resource departments to make sure that they are able to communicate correct information to employees who reach out to them for assistance. In Denmark, communication from providers has had to educate employers on the features and design of the non-guaranteed products, as employers have to choose among a variety of products and providers available, and may not understand the differences. In Quebec, unions have put significant efforts into educating both employers and their members on the benefits and features of non-guaranteed arrangements compared to other types of plans.

Communication and educational efforts may also need to target the financial advisors who help individuals with their retirement planning. Advisors often need to comply with strict regulatory requirements to ensure the suitability of the products that they recommend to their clients (OECD, 2016[8]). As such, they will need to understand the benefits and the technical details of how the products work in order to justify any recommendation to their clients.

Where non-guaranteed lifetime retirement income arrangements have been introduced as part of a broader reform of the system, general communication is needed to explain to participants the implications of the main changes. Nevertheless, it is very difficult to convey these issues in simple messaging for a broad audience, and the general need for reform is often communicated over several years before the changes are implemented to help the population understand the reasons behind the reform. In the Netherlands, discussions around the need for reform began following two reports published in 2010 that highlighted the need for people to better understand the fact that their pensions were not guaranteed. Indeed, the public did not seem to understand that their pension schemes had changed following the conversion of most plans from defined benefit to collective defined contribution in the early 2000s, and still expected that their benefits were guaranteed. For the latest reform efforts, communication has tried to convey at a high level that the benefits can be adjusted and that the system will be more individual rather than collective.

However, it is not yet clear how effective this communication will be in helping participants understand the changes and how it will impact their benefits. One study showed that even simple, factual, messages about the new system were ineffective for individuals having prior beliefs about the current system. In addition, individuals cannot yet see concretely how the changes will impact their own benefits, so their beliefs are even harder to change (van Hekken, Hoofs and Brüggen, 2022[9]). In Iceland, the Federation of State and Municipal Employees managed the communication to their members around the conversion of the public sector scheme to a non-guaranteed arrangement. They focused on three simple messages rather than trying to explain the technical details of the conversion. The first was that members should expect to receive the same level of benefits, the second that the government was providing additional funds to ensure this, and finally that the Federation's role was to make sure that happened. Members had already broadly understood that changes would likely be needed to ensure the sustainability of the scheme and to harmonise the public and private sectors, as this had been stressed in public discourse over the previous decade. Nevertheless, communication around the changes made did not emphasise the potential for their benefits to be reduced, and the government did not clearly define in advance the specific actions needed in the event that the additional funds would not be enough to maintain benefit levels. This could pose a challenge to communicating any future change to the members.

Communication regarding the benefits of the longevity pooling that non-guaranteed lifetime retirement income arrangements provide is also difficult. Individuals tend to have an emotional aversion to the concept of sharing mortality risk. Focus groups in New Zealand have indicated that individuals do not see the logic

in sharing their mortality experience with people they do not know. In Australia, focus groups have expressed that leaving their money to the provider if they die is not fair. Individuals may also have negative associations with certain terms that are commonly used for products offering longevity pooling. In the English language, the term 'annuity' seems to be particularly unpopular, whereas the term 'pension' has more positive connotations related to protection and regular payments in retirement (MacDonald et al., 2021[6]).

As such, the framing of any discussion around the sharing of longevity risk needs to be expressed carefully. Australian Retirement Trust in Australia focuses communication on protection from the risk of running out of money, rather than explicitly referring to longevity. Positive framing with respect to the gains that individuals receive from sharing their mortality risk may also help. AMP refers to gains from mortality experience as 'bonuses', while the Premium Pension in Sweden calls them 'inheritance gains'.

In communicating personalised information about the retirement income benefits that individuals can expect to receive, most jurisdictions aim to stress the fact that benefits are not guaranteed and can be adjusted. In both Germany and the United Kingdom, legislation stipulates that benefit statements must inform individuals that benefits may increase or decrease and the rules in place for doing so. In addition, Germany requires that providers communicate to individuals receiving retirement income benefits if and when any adjustment to benefits is expected. Nevertheless, there is not a specified format to do so. One example of a benefit statement successfully tested in Canada relies on illustrations to show the difference between potential adjustments, both to past accrued benefits and to future accruals.

It is also common to communicate a range of possible benefit levels that the participant could have. The Netherlands will communicate the potential range of assets accumulated based on the 5th and the 95th percentiles of a stochastic simulation in addition to the expected level. In Denmark, providers commonly provide an expected, good and bad retirement income scenario for participants.

There is still much to be done to improve communication on non-guaranteed lifetime retirement income arrangements, however. Complexities in design and the difficulty for participants to accept reductions in benefit payments make communication especially challenging for these types of arrangements. Further testing and research is needed to improve the communication around how these types of arrangements work and the potential for benefit adjustments.

5.5. Policy lessons

While no jurisdiction has had exactly the same experience, the examples discussed in this report illustrate many of the key issues that policy makers need to address at each stage of the development of non-guaranteed lifetime retirement income arrangements in order to promote their success. First, the design of the schemes needs be in line with the policy objectives relating to their role within the pension system and member outcomes. Appropriate legal, regulatory and operational frameworks also need to be in place to allow for and encourage the development of these arrangements. Implementation needs to consider the practical challenges to getting these arrangements operational. Finally, clear and transparent governance and communication is needed to ensure their successful operation and continuity.

5.5.1. Design non-guaranteed lifetime retirement income arrangements in line with policy objectives

The design of any non-guaranteed lifetime retirement income arrangement needs to take into account the context in which it will be implemented. It also needs to align with preferences relating to benefit stability. Design should prioritise simplicity to promote trust and make the schemes easier for participants to understand.

Design needs to be compatible with the context in which the scheme will be introduced

The introduction of non-guaranteed lifetime retirement income arrangements can aim to address several challenges that pension systems currently face in different contexts. In an occupational context, they can be a solution to the sustainability challenges of existing guaranteed plans. In a context of individual defined contribution plans, they can allow for a more efficient use of retirement savings to provide a higher expected lifetime income, mitigate longevity risks, and remove some need for financial decision making from individuals.

Nevertheless, their design needs to be compatible with the context in which they will be introduced, and take into account the trade-offs between different objectives. There is often a tension between objectives that promote welfare maximisation and benefit stability through inter-cohort risk sharing, and those that promote equity, flexibility, and transparency.

Schemes defining rights collectively or imposing more inter-cohort or intergenerational risk sharing are easier to implement in an occupational setting or where participation is mandatory for employees. Collectively defined schemes that cover both the accumulation and pay-out are well-placed to meet the objective of maximising retirement income as they are able to optimise the investment strategy over the long term, and can more easily share both longevity and investment risks across members and cohorts. However, these designs can lack transparency in how risks are shared and are more inflexible for members.

In a context of individual defined contribution plans, non-guaranteed arrangements aiming to provide an efficient solution to pay income from the retirement savings accumulated are better organised around individual accounts for the sake of coherence. It is generally easier to limit inter-cohort risk transfers for schemes designed around individual accounts, and they also tend to be more transparent, facilitating trust that members are being fairly treated and thereby encouraging participation. Members can also have more options to tailor their participation to their risk appetite, desired pattern of retirement income, and benefits for their survivors, which are flexibilities that are often promoted as positive aspects of defined contribution systems.

Design needs to be in line with objectives related to benefit stability and equity

The design of non-guaranteed lifetime retirement income arrangements needs to be coherent with preferences for benefit stability and the extent to which there are cross-subsidies across members. Smoothing mechanisms can reduce the potential volatility of benefits, but introducing smoothing mechanisms will also increase the extent to which risks are shared across cohorts and generations. They also generally require that at least a portion of the rights be defined collectively, which will reduce the transparency of the arrangement and render its design more complex.

In a context where there is a strong cultural preference for guarantees, which is often the case when people are used to having guaranteed occupational pension schemes, it may be preferable to allow mechanisms that increase expected benefit stability to gain the acceptance of individuals to participate in the plan.

The overall design of the pension system can also influence preferences for incorporating a benefit smoothing mechanism. The existence of means tested public benefits can partially offset any reduction in benefits from a non-guaranteed lifetime retirement income arrangement, which could in turn may reduce the need for additional smoothing mechanisms within these arrangements.

Benefit formulas can also have implications for how risks are shared within the arrangement. Age-independent benefit accrual formulas, such as those based on a percentage of salary, can raise concerns around equity and increase the demographic risk borne by participants in the plan because they involve cross-subsidies across cohorts. This design is increasingly viewed as unfair, particularly in a context of rising labour market mobility. The examples of jurisdictions who have moved from benefit

formulas based on a percentage of salary towards age-dependent accrual formulas have demonstrated that changing the benefit formula in an equitable manner down the line is extremely complex. It is therefore important to design the scheme in line with preferences regarding fairness from inception.

Design should be as simple as possible

The design of non-guaranteed lifetime retirement income arrangements can become complex, but should aim to be as simple and transparent as possible while still achieving the other desired objectives. Participants are more likely to trust a scheme if they understand how their benefits are being adjusted, and their perceptions as to whether or not they are fairly treated in a scheme likely matter more than whether the scheme is technically fair. For example, schemes adjusting benefits in an equal proportion for all participants are likely to be perceived as fair because it is more transparent and easier to understand, even if this may technically involve more cross-subsidies across participants.

5.5.2. Ensure the necessary conditions for the introduction of non-guaranteed lifetime retirement income arrangements

Policy makers need to ensure the appropriate conditions for non-guaranteed lifetime retirement income arrangements to be introduced successfully. Existing legal and regulatory frameworks may not currently accommodate these types of arrangements. Any new rules introduced need to balance prescriptiveness with flexibility and should aim to be practical and coherent in their objectives, while the application of existing rules may need to be reconsidered. However, even when allowed, providers may not introduce these types of arrangements without additional incentives to do so.

Existing legal and regulatory frameworks need to be inclusive of non-guaranteed lifetime retirement income arrangements

The existing legal and regulatory frameworks do not always accommodate, or indeed even allow, non-guaranteed lifetime retirement income arrangements. In many jurisdictions, retirement income arrangements are required to have guarantees or are not allowed to reduce benefits. In this case, existing legislation can be modified, or alternatively new legislation introduced, to establish the framework for their design and operation. Other regulatory requirements may impede certain structures from effectively pooling longevity risk.

Accounting frameworks also need to accommodate non-guaranteed arrangements and reflect that the sponsor does not have any future obligation to pay the expected benefit levels. Some frameworks, such as US GAAP, require that schemes be designed around individual accounts in order to qualify as a defined contribution plan for accounting purposes. This treatment may deter employers from offering such schemes to their employees.

Legal and regulatory frameworks need to balance prescriptiveness and flexibility

Legal and regulatory frameworks that allow for non-guaranteed lifetime retirement income arrangements should not be overly prescriptive to allow for some flexibility in development, but should be clear enough to provide some regulatory certainty for potential providers. Overly prescriptive requirements can increase the costs to providers of introducing a non-guaranteed arrangement, acting as a deterrent for the development of new plans, particularly where there is not an established market. However, the legislative and regulatory frameworks also need to offer some certainty to providers that they will not encounter any surprise obligations.

Legislative and regulatory requirements should remain coherent with the nature of non-guaranteed arrangements

Legislative and regulatory requirements should remain coherent with the objective for non-guaranteed lifetime retirement income arrangements to provide a sustainable solution to provide a lifetime income to participants in retirement. The possibility to reduce benefits is a main feature of their design, and policies that are overly risk averse with respect to benefit reductions may undermine one of the main benefits of these types of schemes to improve the expected adequacy of retirement incomes in a sustainable manner. Large collective buffers or risk margins will translate into lower retirement incomes on average. While such protection could remain an option for schemes that wish to provide this level of stability, it should not be a requirement for all.

The application of existing rules may need to be reconsidered

There may be a need to reconsider the application of existing rules to non-guaranteed lifetime retirement income arrangements in some cases. While the underlying concepts that the rules intend to address may be relevant for these arrangements, the implications of their application may differ slightly from existing arrangements with guarantees. This is particularly true around setting assumptions, where excessive prudence could be detrimental for participants' retirement incomes. In addition, because the participants themselves bear the risk of any deviations in experience relative to assumptions, competitive incentives between providers can differ compared to arrangements that provide guarantees. The application of solvency capital requirements may also require further consideration, given that the providers in principle do not bear any solvency risk.

Sponsors and providers need incentives to develop non-guaranteed lifetime retirement income arrangements

Even where the legislative and regulatory framework aims to ensure that providers do not have a disincentive to set up a new scheme, there may still not be sufficient incentives for these schemes to develop organically.

Indeed, jurisdictions that have been most successful at achieving broad participation and scale for non-guaranteed lifetime retirement income arrangements are where individual participation in the plans is mandatory or quasi-mandatory. This overcomes both the supply-side and demand-side disincentives to development and participation.

On a voluntary basis, the biggest inherent incentive for employers to offer a non-guaranteed lifetime retirement income arrangement is to replace a defined benefit pension plan and address concerns related to sustainability and affordability. Nevertheless, the easiest and least costly option for these employers is to instead offer an individual defined contribution plan. Indeed, many employers have already made this change, and introducing a non-guaranteed lifetime retirement income would represent an additional cost and administrative burden.

As such, employee representatives have been more effective at driving the development of these types of arrangements. Where introduction has been successful, unions have often driven legislative change, come up with design proposals, and reduced cost and administrative burdens on employees.

Incentives for retail providers to offer these types of products as a payout solution for DC plans are also a challenge. Product development is costly, the commitment is long-term, and the arrangements would need to be closed if sufficient scale is not achieved. Policies will therefore also need to encourage demand and participation in these arrangements.

Individuals need incentives to participate in non-guaranteed lifetime retirement income arrangements

Non-guaranteed lifetime retirement income arrangements face the same demand-side obstacles as more traditional guaranteed annuity products that pool longevity risk. Where participation is on a voluntary basis, these types of arrangements at least need to benefit from any existing financial incentives that apply to other lifetime retirement income options to provide an incentive for individuals to participate. Additional incentives could be considered to make these solutions more attractive relative to less efficient retirement income solutions such as drawdown. Certain design features can also help to overcome individual biases that may deter their participation. For example, most retail products existing in the market offer some sort of guarantee that the individual will receive back at least the premium they put into the product in order to try to overcome individuals' loss aversion and make the arrangement more attractive to retirement savers.

5.5.3. Overcome the practical challenges for implementation

Several challenges exist for providers to be able to implement a non-guaranteed lifetime retirement income arrangement. To facilitate implementation, the introduction of new schemes should build upon existing institutional frameworks, though required adjustments to admin systems are likely to remain a challenge. Where feasible, any conversion of benefits accrued in existing schemes need to ensure that members are fairly treated. Providers also need to ensure that they will be able to achieve sufficient scale to ensure cost-efficient and stable operations.

Introduction should build upon existing institutional frameworks

To the extent possible, the introduction of non-guaranteed retirement income arrangements should rely on the existing institutional framework in place to take advantage of the infrastructure already in place. Nevertheless, significant updates to the administrative systems may still be required for institutions used to managing collectively defined schemes to manage schemes based on individual accounts. Administrative updates would normally be easier for those already managing individual accounts.

Conversion of benefits accrued in existing schemes should be fair to participants

If a sponsor of an existing pension scheme opts to convert rights accumulated in an existing scheme to a new non-guaranteed lifetime retirement income arrangement – an option which is not always legally possible – the conversion needs to ensure the fair treatment of existing participants. Where benefit formulas change, this can be a very expensive or complex undertaking, requiring significant funds to make up any deficit and re-allocating existing assets to correct for any cross-subsidisation deemed to be unfair. In addition, such calculations are very complex, and rely heavily on assumptions that could change during the time that the new plans will be implemented.

Sufficient scale is needed to achieve cost-efficiency and avoid excessive volatility

Overcoming the financial barriers to set up and operate a non-guaranteed lifetime retirement income arrangement and the need to achieve sufficient scale to avoid excessive benefit volatility may impede smaller providers from setting up an arrangement. Costs to develop and design the arrangement, meet regulatory requirements, and update admin systems can be substantial, and smaller schemes may also not be able to achieve the investment economies of scale required to charge sufficiently low fees to participants. For tontine-type products based on individual accounts, a lack of scale can also directly translate into high benefit volatility.

In an occupational setting, multi-employer or multi-union plans can be one solution to more easily achieve the scale needed for the successful operation of a scheme. However, this approach needs to be mindful

of the demographic risk, as the demographic profile of different employers could result in undesirable cross-subsidies. This can most easily be addressed through an age-dependent benefit formula based on expected returns on contributions.

5.5.4. Include elements to ensure long-term success

Robust governance frameworks and effective communication strategies are essential for the long-term success of non-guaranteed lifetime retirement income arrangements. Governance frameworks should ensure that participants are represented, that assumptions are robust and independent, and that the operation of the arrangement is transparent. Communication should aim to educate all relevant stakeholders how these types of arrangements work in a simple way that ensures that participants understand that benefits can be adjusted. The language used in communication is also important and needs to be carefully selected.

Participants should be represented in the governance of the arrangement

Those who bear the risk of non-guaranteed lifetime income arrangements – that is the participants in the arrangement – should be represented in the governance of the scheme. This is appropriate, as the decisions taken regarding the operation of the scheme and assumptions used to calculate benefits will directly impact the participants and their expected benefits. Even if they are not experts on pensions specifically, they can provide a useful alternative perspective, and training can be provided to bring their knowledge up to minimum levels. Having participant representation in the governing body will also help to promote trust in the schemes.

Assumptions should be established in a robust and independent manner

Funding and benefit calculations rely heavily on assumptions regarding investment returns, longevity, and the economy, among others, so it is important that assumptions are as accurate as possible. As such, the processes to establish assumptions need to be robust and independent from conflicted interests. Since assumptions determine any required benefit adjustments, conflicts can arise if those affected by adjustments are involved in setting assumptions. In a retail setting, sales conflicts may arise because the provider does not bear the cost of inaccurate assumptions down the road, and may therefore have an incentive to set assumptions to make initial incomes more attractive.

Assumptions and benefit adjustments need to be transparent

Transparency around assumptions used and how benefits are adjusted will help to promote trust in the schemes and the view that participants are being fairly treated. Ideally, the rules around benefit adjustment should be clearly defined in advance so that any change is easily explainable and in order to avoid subjective adjustments that may favour certain groups over others. The assumptions used and the rules for adjustment should also be publicly available so that the pension community and other stakeholders can verify that the scheme is operating in a fair and sustainable manner.

Educational initiatives should target all relevant stakeholders

Significant educational initiatives are likely needed to educate not only the would-be participants of the schemes to be introduced, but also other stakeholders such as employers who may want to offer this type of scheme to their employees or financial advisors recommending these types of products to their clients. Pensions are generally hard to understand, and non-guaranteed lifetime retirement income arrangements can be especially complex. Stakeholders will be less inclined to be involved with a scheme or product when they do not understand the basic concept of how it works.

Language used to explain longevity pooling should be carefully chosen

Individuals commonly seem to have an emotional aversion to the concept of pooling longevity risk, so the language used to try to explain this concept needs to be carefully chosen. People feel that it is unfair to leave their assets behind when they die, and having to think about the prospect of dying is uncomfortable. Explanations should rather focus on the benefits of not having to worry about running out of savings, and frame any additional payments received from a non-guaranteed lifetime retirement income arrangement in a positive manner.

Communication on reforms to introduce non-guaranteed lifetime retirement income arrangements need to make clear that benefits can be changed

Any reform aiming to introduce non-guaranteed lifetime retirement income arrangements should stress the reasons for the reform and that the benefits in these types of plans can be adjusted. Ideally, participants will be told concretely how the changes will impact them. This will help to avoid participant misunderstanding and eroded trust in the future if benefits need to be reduced. Failed communication can contribute to a decline of trust in the pension system as a whole, and the need for additional reforms down the road.

Individual benefit statements should explain how benefits could change

Individual benefit statements also need to include information on how retirement income benefits could potentially change. Some jurisdictions present a good, an expected, and a bad outcome to give people a sense of the range of possibilities. Other jurisdictions simply require that the rules of adjustment be disclosed. Some focus groups have found that simple illustrations of how benefits could be adjusted can facilitate understanding. Nevertheless, simple and successful communication is difficult to achieve for any retirement income arrangement, and ensuring that people understand how benefits could be adjusted has proven to be even more difficult. More research and testing in this area is needed to improve communication to individual participants regarding their benefits.

References

Deraspe, R. and L. McGlashan (2016), *The Target Benefit Plan: An Emerging Pension Regime*. [4]

Fuentes, O., R. Fullmer and M. Garcia Huitron (2022), "A Sustainable, Variable Lifetime Retirement Income Solution for the Chilean Pension System", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.4045646. [3]

Fullmer, R. (2019), "Tontines: A Practitioner's Guide to Mortality-Pooled Investments", *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3485774. [1]

Germann, H. (2022), "Von Garantie zur Sicherheit - Anforderungen an das erste Sozialpartner-modell bei der Talanx", *Betriebliche Altersversorgung*, pp. 2-13. [10]

Hadass, Y. et al. (2021), *Fintech and the Retirement Savings System*, Society of Actuaries. [7]

Hayashi, Y. (2020), *Japan's Aging Population Breathes New Life Into a Centuries-Old Investment Idea*. [12]

MacDonald, B. et al. (2021), *Affordable Lifetime Pension Income for a Better Tomorrow*. [6]

Mainichi Japan (2017), *'Tontine' pension programs gain popularity as life expectancy rises*. [11]

National Assembly of Quebec (2020), *Bill 68*. [5]

OECD (2016), "Policy measures to improve the quality of financial advice for retirement", in *OECD Pensions Outlook 2016*, OECD Publishing, Paris, https://doi.org/10.1787/pens_outlook-2016-6-en. [8]

Price, W. and E. Inglis (2021), *Variable Uninsured Life (Value) Annuities: Theory, Practice and Country Cases*, Society of Actuaries. [2]

van Hekken, A., J. Hoofs and E. Brüggen (2022), "Pension Participants' Attitudes, Beliefs, and Emotional Responses to the New Dutch Pension System", *De Economist*, Vol. 170/1, pp. 173-194, https://doi.org/10.1007/s10645-022-09396-7. [9]

Annex 5.A. Country examples

Annex Table 5.A.1 summarises the main features of the different non-guaranteed lifetime retirement income arrangements referred to in this chapter. The remainder of this annex describes the country-specific context and features of these arrangements in more detail.

Annex Table 5.A.1. Examples of non-guaranteed lifetime retirement income arrangements in OECD countries

Jurisdiction	Scheme	Accumulation	Rights	Benefit formula	Benefit adjustment	Benefit smoothing mechanism	Optionality
Australia	Lifetime pension option (Australian Retirement Trust)	No	Individual	Annuity factor applied to accumulated balance	Proportionally for all members	None	Return of premium guarantee; 6 month withdrawal period
Canada	Shared Risk Pension Plan (New Brunswick)	Yes	Collective	Reference to salary	Proportionally for all members	Risk-based collective buffer	
Canada	Target Benefit Pension Plans (Quebec)	Yes	Collective	Reference to salary	Proportionally for all members	Risk-based collective buffer (PfAD); initial 'stabilisation contribution' by sponsor	
Canada	Longevity Pension Fund (Purpose)	Possible	Individual	Annuity factor applied to accumulated balance	By cohort	None	Withdrawals; Investment
Denmark	Occupational DC	Yes	Individual	Annuity factor applied to accumulated balance	Varies	Varies	Investment
Germany	Social Partner DC (Talanx & Zurich)	Yes	Individual	Annuity factor applied to accumulated balance	Proportionally	Collective reserve; funding corridor	
Iceland	Occupational DC	Yes	Collective	Return on contribution	Proportionally for all members	Funding corridor	
Japan	Risk sharing pension plans	Yes	Collective	Varies	Proportionally	Risk-based collective buffer	
Netherlands	Collective Defined Contribution	Yes	Collective	Reference to salary	Proportionally	Risk-based collective buffer; recovery period	
Netherlands	Flexible Collective DC Scheme (new contracts)	Yes	Individual	Annuity factor applied to accumulated balance	By profit source	None	Investment

Jurisdiction	Scheme	Accumulation	Rights	Benefit formula	Benefit adjustment	Benefit smoothing mechanism	Optionality
Netherlands	Solidarity Collective DC Scheme (new contracts)	Yes	Individual	Annuity factor applied to accumulated balance	By profit source	Collective reserve	Investment
Sweden	Unit-linked Annuity for Premium Pension	Yes	Individual	Annuity factor applied to accumulated balance	By profit source	None	Investment
United Kingdom	Collective Defined Contribution (Royal Mail)	Yes	Collective	Reference to salary	Proportionally for all members	None	
United States	TIAA Variable Income Option	No	Individual	Annuity factor applied to accumulated balance	Proportionally	None	Investment; Early withdrawal period

Australia

Australia has recently introduced several measures to encourage superannuation providers to offer retirement income products providing longevity protection. The lifetime annuity market in Australia is underdeveloped, and the retirees withdrawing a regular income from their superannuation account tend to do so at the minimum withdrawal rate. This means that they have not been optimising the income they could receive from their retirement savings.

To further the goal of making lifetime income solutions attractive, in 2017 the government extended the superannuation tax concessions to innovative retirement income products purchased within the superannuation system. To qualify, products must meet certain requirements, including that regular benefits are payable for life, that benefits are not unreasonably deferred, and that there are limits on withdrawal and surrender values. Previously, these tax concessions only applied to regular withdrawals from the superannuation account.

In 2019, they introduced an additional incentive for products providing lifetime incomes. Under the new rules, only 60% of the income will count toward the means test for public pension benefits.

In February 2022, the government introduced a Retirement Income Covenant to take effect in July 2022. The Covenant obliges trustees to offer a retirement income strategy to their members that helps them to balance the objectives of maximising their expected retirement income, managing the risks to the sustainability and stability of that income, and providing flexibility to access their funds. Trustees must regularly review whether the strategy offered remains suitable and meets these objectives. They must also identify the category of beneficiaries for whom the strategy should be appropriate. The appropriateness of a given strategy can consider other sources of retirement income as well, such as how much the member can expect to receive from the state pension.

While non-guaranteed lifetime retirement income solutions are not yet widely available, a few superannuation providers offer them. One example is the Lifetime Pension offered by Australian Retirement Trust.[6] The product provides retirement income payments for life that are expected to increase and has an option for a survivor annuity. The product offers a six-month trial period, during which members may change their mind and withdraw their money from the product. It also guarantees that members will get back at least the premium they pay into the product. This guarantee is insured via an external life insurance policy. Payments are adjusted annually based on the experience of the pool that year by a

proportional adjustment to income that is the same for all members in order to equalise the asset base with the present value of future payments.

Canada

Variations of non-guaranteed lifetime retirement income arrangements have existed for several decades in Canada. The retirement plan offered by the University of British Columbia was the first of this type. Under this plan, members contribute to individual accounts over their working life. At retirement, they have the option to purchase a variable life annuity whose initial income level is calculated using a discount rate of either 4% or 7%. Payments are regularly adjusted in a proportional manner for all participants based on the relative investment and mortality performance.

However, legislation to allow these types of schemes varies across provinces in Canada. The federal government proposed a target benefit regime in 2016, but nothing came of the proposal. Alberta, New Brunswick and Quebec have passed legislation permitting target benefit plans. British Colombia and Saskatchewan allow target benefits only for multi-employer schemes. Ontario has proposed a legislative framework to allow for them, but has not yet implemented it. Most legislation requires funding levels above 100% to cushion a certain amount of adverse deviation. After public consultation, Manitoba and Nova Scotia decided not to move forward with a legislative framework to allow for target benefit plans.

The New Brunswick provincial government established a legislative framework for Shared Risk Pension Plans in 2012 following increasing financial pressures on Defined Benefit plans coming from the challenging financial environment, increasing longevity and the maturing demographics of the plans. Under these plans, target benefits are set so that the targets can be met over 20 years with 95.5% certainty, and that indexation targets can be met with 75% certainty. To assess whether targets will be met, plans must perform an annual risk assessment based on one thousand 20-year simulations. Projections of the annual funding ratio must never fall below 100% over 15 years for new plans, and for existing plans must never fall below 100% for two years in a row, and funding must be positive at the end of the 15-year projection. If these targets fail to be met, the plan must execute recovery strategies that are transparent and clearly defined in advance. While contribution increases are allowed, they are capped to a certain percentage of earnings and contributions. Legislation requires that the plan must be equitably designed with no single cohort subsidizing another.

Quebec passed exceptional legislation in 2012 to allow businesses in the paper and pulp sector to convert their defined benefit plans to target benefit plans (TBP). This sector had been struggling to fund their defined benefit obligations in the consumer shift away from paper to digital formats. In 2020 Quebec then passed an amendment to the existing legislation for DB plans to allow employers and unions more widely to establish target benefit plans for their employees.[7] As such, many of the existing requirements for DB plans also apply to TBP. Benefits should be defined based on accrual rate as a percentage of average salary, and accruals based on final salary are prohibited. Contributions to the plan should be able to achieve a target funding level that incorporates the risk-based Provision for Adverse Deviation (PfAD). Benefits must be cut if funding falls below 100% in order to return funding to 100%. All members must be treated equally, with benefit cuts applying to all. If contribution levels are no longer sufficient to finance the current accrual rates, accruals are adjusted. The employees nevertheless have the option to increase their contributions to maintain the same accrual rates. Benefits that have been previously cut can be re-instated if funding levels are half-way to the funding target. More than 20% of the surplus beyond the target funding levels cannot be dispersed to members in any given year.

Canada also modified the tax legislation in 2021 to allow variable payment life annuities (VLPAs) as a decumulation option for individual registered defined contribution plans and pooled registered pension plans (PRPPs) (MacDonald et al., 2021[6]).

Purpose Investments offers a “Longevity Pension Fund” structured as a mutual fund. It groups members by cohort, and calculates the retirement income using conservative mortality assumptions. It aims to increase income over time, and adjusts benefits according to investment and longevity experience. Members can withdraw at any time the lesser of their unpaid capital or account value.

Denmark

Employees in Denmark are required to contribute to retirement savings plans when offered by their employer. These arrangements are often established through collective agreements with social partners. Over the last decades, providers have been moving away from guaranteed arrangements in light of the low interest rate environment and increasing longevity. There are no real restrictions on how these arrangements can be designed, however, and providers can offer a wide range of options that can involve different investment options for members or smoothing mechanisms to provide benefit stability. Most of the non-guaranteed pension plans on offer do pool the longevity risk of members and pay a lifetime retirement income, though longevity pooling is usually done only during the pay-out phase.

Germany

Germany introduced legislation in 2018 to allow employers to establish “Pure DC” schemes, or better termed Social Partner DC schemes.[8] Prior to this legislation, schemes had to provide guarantees. The new types of plans cannot provide guarantees, and must be established through collective bargaining with social partners. If they are not bound by collective bargaining agreements, employers and employees can agree that relevant collective bargaining agreements (i.e. agreements applying to their industry) are to be applied.

Legislation provides the boundaries for the design of these schemes, but allows for a wide range of flexibility in their design. All aspects of design and governance are established in the collective agreements. Schemes can be based on individual accounts, or managed wholly on a collective basis. Collective buffers can mitigate volatility during the accumulation period. At retirement, the accumulated capital is converted into a lifetime income stream using an annuity factor. This annuity factor can include some conservatism to provide for an additional buffer against benefit adjustments, but this buffer cannot exceed 25% of the best estimate calculation. An additional buffer comprised of safety contributions made by the employer can be included in the collective agreement, and though expected is not mandatory. Benefits cannot be increased unless the total funding ratio exceeds 110%, and benefits must be cut if it falls below 100%. Upon changing employment, employees may continue to contribute to the plan of their former employer or transfer the capital to another scheme of the same type.

Die Deutsche Betriebsrente (DDBR), a consortium set up by Talanx and Zurich, agreed to the first of these plans in July 2021 following two years of negotiations with social partners, which became operational in 2022. Member contributions are divided between their individual account and a collective buffer. Funds are invested to achieve a target net rate of return of 3.85% and a target volatility of under 10%. Individual accounts will be credited an assigned interest rate equal to the target rate of return as long as overall funding levels remain within a defined corridor, where funding is defined as the sum of the individual accounts and the collective buffer over the total of the individual accounts. If funding levels fall outside of the corridor, the assigned interest rate is one that will return the funding position to be within the corridor. At retirement, members receive a retirement income calculated based on their individual account plus their proportion of the collective buffer. Any necessary adjustment is communicated three months in advance and can be done gradually (e.g. linearly over five years). Employers make contributions to an additional security buffer which can be used only in exceptional circumstances. This is namely when there are not sufficient assets in the collective buffer to pay retirees their additional capital, or to avoid benefit reductions (Germann, 2022[10]). The amount of this account that can be used at any given time is limited, however.

The energy company Uniper is also setting up a social partner plan, and social partners in the chemical industry have announced plans to establish one.

Iceland

Iceland has a mandatory occupational pension system to which all workers, including the self-employed, are required to contribute. The schemes for private sector employees are non-guaranteed lifetime retirement income arrangements, though they are commonly referred to as Defined Contribution (DC) unprotected plans. Historically, plans in the private sector have been DC, whereas those offered in the public sector have been DB.

Legislation requires that the accrual rates for each pension scheme aim to provide a minimum target replacement rate of 56% of average wages. Target benefits are indexed to inflation, and accrual rates are set by each scheme. Prior to 2006, some schemes used age-independent accrual rates. However, since then private sector schemes have moved to age-dependent accrual rates where individual benefits accrued are a function of the target benefit level and expected rate of return of 3.5%. Regulation requires that the expected liabilities be valued based on a real discount rate of 3.5%. This assumption has not been updated since 1997, and there is no requirement to review it.

In 2016, the government passed a bill to transform the A-schemes for civil servants from Defined Benefit schemes to DC for members below the age of 60. New members are enrolled directly into a collective DC plan with age-based accrual rates. For existing members under age 60, the government provided a capital injection to the schemes to bring the funding levels to 100% assuming the constant accrual rate so as to not make current members worse off. In addition, it set up an emergency fund that could be used to correct any future imbalance resulting from updated mortality assumptions used to value the benefits provided by the schemes. As such, in principle these members should expect to receive the same benefits as they otherwise would have, though benefits may be adjusted in light of actual investment experience.

Schemes must adjust benefits if the total funding ratio (taking account future contributions and benefit accruals) deviates by more than 10% from full funding, or when it deviates by more than 5% over five consecutive years. Adjustments are made proportionally to past benefits accrued and current benefits in payment. Occasionally, accrual rates are also adjusted. The Board decides how to adjust benefits at the time it is necessary, though they are required to consider the fair treatment of members.

Japan

Japan introduced legislation in 2017 to allow risk sharing occupational pension plans as an alternative to the traditionally offered defined benefit plans, which are often cash balance plans. While the legislation allows for flexibility in the design of the risk sharing plans, in practice they have so far typically retained the existing benefit design, and are fully financed by the employer.

At inception, the plan is required to calculate a risk margin linked to the actual underlying investment, funding, longevity, and withdrawal risk of the scheme. There are two options to calculate the risk margin. The first is with a standard formula prescribed by the regulator. The second option is to develop a customised approach, which is generally calculated to protect employees with a 95% probability. Among 21 risk sharing plans in Japan, 8 plans have taken the standard approach and 13 plans have taken the customised approach.

The risk margin is not required to be fully funded immediately, and employers can fund them over five to 20 years. The risk margin is always funded by the employer only. Employers have an incentive to finance the risk margin by at least 50% when converting from a DB plan, otherwise any changes to the plan are

not allowed without employee consent. With sufficient funding, changes only require the approval of an employee representative rather than the consent of two-thirds of individual employees.

Benefit adjustments are transparent and defined in advance. The only subjectivity lies in the assumptions used for the calculations, and these need to be approved by the pension committee. If plan resources fall below the target benefit levels, benefits will be cut. If plan resources are above the required risk margin, the excess will be distributed to employees. Only the benefits in payment are adjusted, and the adjustment is equivalent for all members. Target benefits are never adjusted.

Investment strategies commonly provide an expected investment return of around 2.5%. While this is rather conservative, cultural preferences tend to be more risk averse. Many members of defined contribution plans have large holdings of cash, for example, so providing conservative but positive investment returns will still improve expected retirement income.

At retirement, the same rules apply for these schemes as for DB schemes. Lump sums are allowed, and fixed-term annuities are more common than lifetime annuities. If lifetime income is offered, the risk margin needs to account for the longevity risk.

Schemes must have a pension committee that manages them, with at least one employee representative.

A few Japanese insurance companies are offering individual retail products providing a non-guaranteed lifetime retirement income. Nippon life launched a tontine retirement income product GranAge in 2016. Individuals can purchase the product from age 50 to 87, and can choose to receive a ten year fixed annuity or a lifetime annuity (Mainichi Japan, 2017[11]). In 2020, they had already sold over 75 000 contracts, the majority of whom are women, and who are often in their 50s when people are earnestly planning for their retirement (Hayashi, 2020[12]). Dai-Ichi has introduced a similar product named “Longevity Story”, and Taiyo Life Insurance offers a “100-Year Life Pension”.

Netherlands

The most common types of schemes in the quasi-mandatory occupational pension system in the Netherlands are non-guaranteed lifetime retirement income arrangements, commonly referred to as Collective Defined Contribution (CDC) schemes. These schemes were generally converted from Defined Benefit schemes in the early 2000s, when many employers recognised that they could not fully guarantee the level of benefits provided.

The current CDC schemes cover both the accumulation and payout phases. Benefits are accrued as a constant percentage of salary for all members. Taking a lifetime income stream from the scheme at retirement is mandatory. Target benefits are indexed to inflation, but indexation cannot be granted unless funding ratios are above 105% based on a valuation using the risk-free term structure and ultimate forward rate (UFR), and a recovery plan must be implemented over ten years. If funding falls below 90%, benefits must be cut as part of the recovery plan. Recovery plans can take the expected return on investment into account, but increasing the risk profile of the investment strategy is not allowed. There are no clearly defined rules about how benefits should be adjusted and for whom, and the board of trustees decides how to make any required adjustments.

However, the government has frequently changed the rules of the system. The funding threshold under which benefits must be cut has been gradually reduced, the latest reduction being from 100% to 90% in 2019. The funding threshold to allow for indexation was also reduced from 110% to 105% in 2022. Prior to 2007, the discount rate required for valuation was 4%. With the introduction of fair market valuation, discount rates were then based on the market risk-free term structure, and the UFR was introduced in 2012. They also reduced the recovery period allowed to avoid benefit cuts to ten years from 15, but then allowed the recovery plan to be renewed every year. These changes also reduced the time for benefit cuts

to take effect from three years to immediately, though the cuts could be applied gradually over a ten-year period.

The Netherlands is currently undergoing a pension reform that will change the existing model to one that is based on capitalised individual accounts. In 2019, the government, social partners, and pensions industry agreed to the reform in principle, and legislation is being developed since 2020. The legislation will be in place by 2023, after which the new system will be implemented by 2027. Under the planned reforms, existing schemes must convert all accrued rights – not only those that will be accrued in the future – to the new contracts. An exemption is made for pension schemes insured by private insurers that are based on age-dependent premiums. In that case, they will be allowed to continue the existing pension scheme, but for existing participants only. Pension funds having a funding ratio below 95% must submit a transition plan to achieve full funding by 2026 to avoid having to reduce benefits before the transition.

Under the proposed reforms, there will be two types of contracts. The Flexible Collective DC contracts will be individual accounts, with earned returns distributed to participants based on clearly defined rules. The Solidarity Collective DC will also have individual accounts, but will invest a portion of the contributions into a collective solidarity reserve that will be used to reduce the volatility of benefits in retirement. The reserve can be financed with up to 10% of the contributions, cannot exceed 15% of assets under management, and cannot be negative.

Sweden

Sweden established the Premium Pension in the 1990s, in part to allow individuals to feel responsible and make choices for their retirement, and to diversify retirement income sources to not only be dependent on economic growth. It operates as the funded component of the first pillar pension. Contributions from members are mandatory at 2.5% of salary, and are invested in the fund(s) of the member's choice. Individuals can choose up to five different funds in various categories of investment and risk levels. If individuals do not make a choice, their contributions go automatically to the publicly managed AP7 fund.

The Pensions Agency centralises the administration, contribution management and payment of pensions, and they also handle all of the communication to individuals.

Anytime from retirement, individuals can choose to keep their funds invested and receive a variable, unit-linked payment for life, or use the accumulated assets to purchase a traditional life insurance annuity, which is a with-profit annuity guaranteeing a minimum income for life with the potential for higher payments with good investment and/or mortality experience. The former option is provided by default if the individual does not choose. They may also use only a portion of their assets to receive a retirement income. People can transfer at any time from a unit-linked to a traditional annuity, or from a single life to two-life annuity at retirement or if marrying during retirement, but not the other way around, except in the case of divorce. Payments are not reduced after death for the joint annuity.

For the unit-linked product, retirement income is calculated by dividing the account balance by an annuity factor assuming a 1.75% real rate of return, which was recently reduced from 3%. Mortality assumptions are based on projections by Statistics Sweden, adjusted in a prudent manner to reflect expected mortality weighted by the amount of retirement income rather than individual deaths.

Individuals can choose to change investment strategies, even while receiving a retirement income. There are currently no restrictions on the type of investment strategy selected, though recent reforms will limit more the types of investment options available, and the Pensions Agency will eventually screen the allowed funds through a procurement procedure. The annuity factor does not vary depending on the strategy chosen, however. The value of individuals' accounts reflect the actual investment experience of their chosen strategy. Once per year, the total value of the accounts of those who have died over the last year are distributed to the surviving members' accounts in a way that varies by age.

United Kingdom

The Pension Scheme Act passed in 2021 provides the legislative framework for "Collective Money Purchase" (CMP) schemes in the UK, and defines what qualifies as this type of scheme and a benefit from the scheme.[9] It sets out requirements for authorisation to ensure that the individuals running the scheme are capable, the design of the scheme is sound and financially sustainable, communication is effective, the systems and process are effective, and there is an adequate continuity strategy. It requires that rules for the valuation and adjustment of benefits be defined in advance. Initially, only schemes for single-employer or for several connected employers are allowed, but eventually there is room to expand to multi-employer schemes. The legislation entered into force in August 2022.

Regulation will implement the authorisation and supervision regime under the responsibility of The Pension Regulator. The government published a draft of the regulations for consultation over July and August 2021. The Pension Regulator also released a draft Code of Practice for consultation in January 2022 that provides more detail on the processes required to meet regulatory standards.

Royal Mail is the first employer to launch a CMP plan, and indeed was the driver of the introduction of the needed legislative changes. They currently have around two-thirds of their employees in a defined benefit plan and one-third in a defined contribution plan. Accumulated rights in these plans will remain, but all future contributions will go to the new Collective Pension Plan. Retirement income rights will accumulate at 1.25% of salary per year of contribution, indexed to inflation. These rights will be adjusted each year depending on investment performance and longevity experience, for both accumulation and payout. Survivor benefits are equal to 50% of the original retirement income benefits. Survivor benefits if death occurs during accumulation are paid as a lump sum equal to four times the salary. The annual rate of increase (or decrease) to benefits assumed over the members' lifetimes is adjusted at each valuation such that the new actuarial value of benefits equals the value of assets.

United States

The Teachers Insurance and Annuities Association of America (TIAA) has offered a lifetime variable income option for its members at retirement since the 1950s. Members have a wide variety of investment options. They can also opt for a 'test drive', where they are able to withdraw from the plan during the first two years. Retirement income payments vary depending on investment and mortality performance.

The SECURE Act passed in 2019 could facilitate further development of these types of arrangements because it does not require that a lifetime retirement income be provided with insurance (Hadass et al., 2021[7]).

Notes

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[2] The original tontine design immediately distributed the account values of deceased members equally among the surviving members. However, as this approach is not conducive to providing a regular and stable income in retirement, this report does not consider this design further. Schemes must pay out a portion of the initial premium in addition to realised gains in order to optimise welfare and provide a regular and stable income to members.

[3] This product was previously offered by QSuper, which merged with Sun Super to form Australian Retirement Trust in February 2022.

[4] This could be the case, for example, for schemes based on individual accounts where adjustments to account for differences between actual and expected longevity experience are implemented prospectively via an adjustment of the payout factor rather than retrospectively via an explicit credit to each account.

[5] Any additional premiums paid will be tax exempt up to a certain level and for a maximum of 14 years.

[6] This product was previously offered by QSuper, which merged with Sun Super to form Australian Retirement Trust in February 2022.

[7] Bill 68

[8] Betriebsrentenstärkungsgesetz

[9] Pension Scheme Act 2021

OECD Pensions Outlook 2022

The *OECD Pensions Outlook* discusses how to introduce, develop and strengthen asset-backed pension arrangements, the role that employers can play in their provision, and the implication of different fee structures on individuals saving for retirement and on providers. The 2022 edition focuses on describing best practices for developing mortality tables and providing policy guidance on how to design, implement and continue the operation of non-guaranteed lifetime retirement income arrangements.

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