REFORMING THE PENSION SYSTEM IN TURKEY

Comparison of Mandatory and Auto-Enrolment Pension Systems in Selected OECD Countries
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Undersaving for retirement is a common phenomenon; most people do not limit their consumption during working years, even to enjoy a higher and guaranteed level of lifetime income during retirement. Governments have been promoting various traditional and behavioural policy tools, aiming to increase participation and contribution rates in funded pension plans. While traditional tools such as tax incentives and matching contributions may have some positive effect on encouraging retirement savings, their impact still remains limited in generating new savings.

This paper studies the case of Turkey and suggests several tools to promote retirement planning. Section I provides a review of the traditional and behavioural policy instruments designed to promote retirement savings, along with a discussion on their effectiveness. Section II offers an in-depth comparative analysis of eight countries that have implemented mandatory and auto-enrolment pension systems. Section III presents an overview of the Turkish pension system and suggests policy measures to reform the automatic enrolment system in Turkey. The Turkish private pension experience may provide an interesting case study for future implementations of automatic enrolment programmes in other countries.

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Executive Summary

Undersaving for retirement is a common phenomenon; most people do not limit their consumption during working years, even to enjoy a higher and guaranteed level of lifetime income during retirement. As stated by the Economic Policy Institute report (Morrissey, 2016[1]), “Nearly half of all working-age families in the U.S. have zero retirement account savings”. Instead, “Many pre-retirees own or plan to own a second property in their home country (65%) or overseas (32%), while more than half (52%) own or plan to own jewellery, gold or diamonds” (HSBC, 2015[2]). The same research shows that a high percentage of pre-retirees in Turkey (54%), Australia (46%), U.K. (39%), and Brazil (32%) do not feel confident about maintaining an optimal standard of living in old age.

Governments have been promoting various traditional and behavioural policy tools, aiming to increase participation and contribution rates in funded pension plans. While traditional tools such as tax incentives and matching contributions may have some positive effect on encouraging retirement savings, their impact still remains limited in generating new savings. More importantly, they incur substantial costs for government budgets. Observing the inadequacy of traditional economic incentives, behavioural economists have suggested various behavioural interventions based on a ‘nudging’ principle that simplifies decision making for retirement by changing the presentation of the underlying options for individuals (for example, see (Thaler and Sunstein, 2007[3])). Existing evidence shows that, compared to traditional policy tools, behavioural policy tools can generate significantly bigger impact on the level of retirement savings at a relatively lower cost for governments. As a case in point, a recent study by Benartzi et al. (2017[4]) shows that the return on investment of the active decision nudge is approximately 100 times larger compared to tax incentives and similar traditional mechanisms. Various country experiences also show that behavioural interventions are effective in boosting retirement savings.

This paper studies the case of Turkey and suggests several tools to promote retirement planning. Established in 2003, the Turkish private pension system is based on defined contribution (DC) plans and targets to promote long-term savings to contribute to the growth of capital markets in the country. However, among the major OECD countries, the Turkish private pension funds sector is still one of the smallest and adds up to only 2.5% of GDP. This is much in line with the size of public equity market’s value being less than a quarter of GDP. Hence, growth of private pensions will be very important not only in expanding market-based financing for companies but also tackling the issue of low savings level.

To encourage retirement savings in DC plans, two policy measures were put into effect by the Turkish government: i) state matching incentive, where the government contributes up to 25% of the amount paid by the employee, and ii) automatic enrolment legislation in 2017. While the automatic enrolment system is expected to boost participation rates among first-time savers in Turkey (like in other countries such as the U.K. and New Zealand), the opt-out rate from the system is still around 54% (Insurance Association of Turkey, 2018[5]).
In order to provide suggestions to reform the Turkish private pension system, the report first offers an in-depth comparative analysis of eight OECD countries (Sweden, the Netherlands, Australia, Chile, Mexico, the United Kingdom, New Zealand and Italy) that have successfully implemented mandatory and automatic enrolment pension systems. To take lessons from the experiences of these countries, five key features of mandatory and automatic enrolment programmes are presented: i) target population and coverage rates, ii) contribution rates and financial incentives, iii) default fund design, iv) fee structure, and v) payout phase. Along the same features, the report then presents an overview of the Turkish pension system. Finally, the following policy revisions are suggested for the recently introduced automatic enrolment programme in Turkey:

i. The target population should cover the whole working population between ages 15 – 64, including the self-employed. Employees should not be allowed to cease their membership in the automatic enrolment system after the opt-out period.

ii. Employer contributions should be compulsory and the level of state financial incentives should be inversely related to income levels.

iii. Life-cycle funds as default options should be offered in Turkish DC pension plans.

iv. Tender-based selection of default fund providers can reduce fees in the automatic-enrolment pension schemes.

v. Life-annuity products and mandatory annuitization are critical for a well-designed pay-out phase in Turkish DC plans.

The paper is structured as follows. Section I provides a review of the traditional and behavioural policy instruments designed to promote retirement savings, along with a discussion on their effectiveness. Section II offers an in-depth comparative analysis of eight countries that have implemented mandatory and auto-enrolment pension systems. Section III presents an overview of the Turkish pension system and suggests policy measures to reform the automatic enrolment system in Turkey. The Turkish private pension experience may provide an interesting case study for future implementations of automatic enrolment programmes in other countries.
Section I. Policy Tools to Encourage Retirement Savings

In standard economic models of savings, individuals rationally plan their long-term consumption and savings needs; they save a portion of their earnings in working years to finance desired levels of consumption for the rest of their lives (Ando and Modigliani, 1963[6]). However, contrary to this conventional teaching, empirical research and country experiences show that most people fail to achieve their long-term savings goals such as retirement (Lusardi, 1999[7]; Poterba, 1994[8]).

Traditional economists attribute low levels of retirement savings mainly to economic disincentives, such as taxation of pension savings or general lack of financial literacy. To address these problems, governments and policymakers have introduced policies, ranging from offering financial incentives (tax incentives, matching contributions, and state subsidies) to providing financial education for retirement plan participants.

Traditional Policy Tools

Tax Incentives

A report by the OECD (2018[9]) reveals that the majority of OECD and EU countries offer tax incentives for pension savings under an “EET” (Exempt, Exempt, Taxed) regime, where contributions and investment returns are tax-exempt while only pension benefits are subject to taxation upon withdrawal. While other tax arrangements are less common, a variety of possible combinations also exist ranging from fully exempt “EEE” regimes (e.g. Bulgaria and the Slovak Republic) to regimes where two out of three stages of pension savings are taxed (e.g. “TTE”: Australia and Turkey, and “TET”: France and Belgium).

Although most academic research studies indicate the effectiveness of tax incentives in increasing pension savings, there seems to be no clear consensus on whether this increase comes from new savings or from re-allocation of existing investments. Nevertheless, according to an OECD (2018[9]) report based on a literature survey, a reasonable estimate could be that new savings represent between a quarter and a third of retirement savings in tax-favoured plans, with the rest possibly being re-allocated investments.

Matching Contributions & State Subsidies

Almost half of the OECD countries offer matching contributions only from the employer (e.g. Iceland and the United States), only the state (e.g. Hungary and Turkey) or from both (e.g. New Zealand). Whilst matching contributions are widely used forms of financial incentives, state subsidies exist only in five OECD countries: Chile (for women), Germany (in Riester plans), Lithuania (second pillar pensions), Mexico (social quota for mandatory accounts) and Turkey (in the automatic enrolment scheme). In state subsidies, when the subsidy amount is fixed for all income levels, it may mean relatively larger incentives for low-income groups.
Empirical evidence indicates that matching contributions and state subsidies can increase participation in retirement savings plans and encourage low-to-mid-income people to stay longer in the system. Yet, there is little supporting evidence on the effectiveness of these financial incentives on total contributions. While some studies indicate that the match threshold has a substantial impact on the level of individual contributions, higher percentage match by employers does not seem to encourage higher employee contribution rates (Madrian, 2012[10]).

Financial Education

Financial education plays a central role in providing information, instruction and advice to retirement participants about their savings and investment strategies. The most common way of offering information about retirement issues is through websites. According to the OECD Pensions Outlook (2016[11]), all reporting countries have at least one website offering information mostly about the key features of retirement systems (public vs private and mandatory vs voluntary), types of pension plans (defined benefit vs defined contribution) and investment products (balanced funds vs life-cycle funds). Examples of such websites include PensionsInfo.dk in Denmark and Info-retraite.fr in France.

Instruction in financial education is often provided through seminars, workshops and training sessions by various parties (employers, pension providers, regulators and third-party experts) to assist participants (employees or pension fund members) for retirement planning. Some examples are Australia’s Financial Information Service, Netherlands’ the Money Wise Platform, and the TIAA-CREF financial education seminars in the US. Unlike information and instruction mechanisms, only a few countries offer advice and one-to-one counselling services about retirement savings (e.g. UK’s Pension Wise Campaign and Chile’s Pension Regulator). More recently (OECD, 2018[12]), by reducing the need for human involvement with artificial intelligence, robo-advisors can recommend an asset allocation with low-cost investment options such as exchange traded funds and transparent fee structures for retirement planning (e.g. Betterment, Wealthfront, RobustWealth in the US). Empirical evidence indicates that workplace financial education through seminars, workshops, and training sessions, have improved retirement savings especially for low and moderate savers (Lusardi and Mitchell, 2007[13]; Prawitz and Cohart, 2014[14]).

Table 1 summarizes the traditional policy tools in OECD and non-OECD EU countries for which data are currently available. All reported countries provide at least two forms of traditional policy tools (tax advantage and financial education) and about half of OECD countries offer a combination of tax benefits and matching contributions. However, the majority of country experiences show that tax reliefs, matching contributions and state subsidies can result in substantial costs for governments. For example, according to the Joint Committee on Taxation estimates, tax-deferred 401(k) pension plans cost the U.S. government approximately $110 billion in 2015. Similarly, in 2010, tax incentives and state subsidies for Riester pension plans in Germany, generated a €3.5 billion expense for the government, of which about 80 percent was due to the flat-rate subsidies. A cost-benefit analysis would seem to be useful for future policy development.
Table 1. Summary of Traditional Policy Tools in Encouraging Retirement Savings

<table>
<thead>
<tr>
<th>Country</th>
<th>General tax Treatment</th>
<th>Matching Contributions &amp; State Subsidies</th>
<th>Financial Education Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>TET</td>
<td>SM – 4.25%</td>
<td>Information, Advice</td>
</tr>
<tr>
<td>Australia</td>
<td>TTE</td>
<td>SM – 50%</td>
<td>Information, Instruction</td>
</tr>
<tr>
<td>Belgium</td>
<td>TET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Canada</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Chile</td>
<td>EET</td>
<td>SM - 15% to 50%, SS for women</td>
<td>Information, Instruction, Advice</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>TEE</td>
<td>SM - Variable Amounts</td>
<td>Information, Instruction</td>
</tr>
<tr>
<td>Denmark</td>
<td>ETT</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Estonia</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Finland</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>France</td>
<td>TET</td>
<td>No</td>
<td>Information, Advice</td>
</tr>
<tr>
<td>Germany</td>
<td>EET</td>
<td>SS - Max €175/year in Riester</td>
<td>Information, Advice</td>
</tr>
<tr>
<td>Greece</td>
<td>EET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Hungary</td>
<td>TEE</td>
<td>SM - 20%</td>
<td>Information</td>
</tr>
<tr>
<td>Iceland</td>
<td>EET</td>
<td>EM - 50%</td>
<td>NA</td>
</tr>
<tr>
<td>Ireland</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Israel</td>
<td>TEE</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Italy</td>
<td>ETT</td>
<td>EM</td>
<td>Information</td>
</tr>
<tr>
<td>Japan</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Korea</td>
<td>TET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Latvia</td>
<td>EET</td>
<td>No</td>
<td>Information, Instruction</td>
</tr>
<tr>
<td>Lithuania</td>
<td>TEE</td>
<td>SS</td>
<td>NA</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>TEE</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Mexico</td>
<td>EEE</td>
<td>SM - 325%, SS (Social Quota)</td>
<td>Information, Instruction</td>
</tr>
<tr>
<td>Netherlands</td>
<td>EET</td>
<td>No</td>
<td>Information, Instruction, Advice</td>
</tr>
<tr>
<td>New Zealand</td>
<td>TTE</td>
<td>SM - 50%, EM</td>
<td>Information, Instruction</td>
</tr>
<tr>
<td>Norway</td>
<td>EET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Poland</td>
<td>EET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Portugal</td>
<td>TET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>EEE</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Slovenia</td>
<td>EET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Spain</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Sweden</td>
<td>ETT</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Switzerland</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
<tr>
<td>Turkey</td>
<td>TTE</td>
<td>SM - 25%, SS (automatic enrolment)</td>
<td>Information</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>EET</td>
<td>No</td>
<td>Information, Advice</td>
</tr>
<tr>
<td>United States</td>
<td>EET</td>
<td>EM</td>
<td>Information, Instruction, Advice</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>EEE</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Croatia</td>
<td>EET</td>
<td>SM -15%</td>
<td>NA</td>
</tr>
<tr>
<td>Cyprus</td>
<td>ETE</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Malta</td>
<td>TET</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>Romania</td>
<td>EET</td>
<td>No</td>
<td>Information</td>
</tr>
</tbody>
</table>

Note: SM= State Matching Contribution, EM= Employer Matching Contribution, SS= State Subsidy, T= Taxed, E= Exempt, and NA= Information Not Available.

Behavioural Policy Tools

Unlike conventional economics, which portrays people as fully-rational maximisers of expected utility, behavioural economics assume that people exhibit ‘bounded rationality’, ‘bounded willpower’, and ‘bounded self-interest’, particularly when making long-term decisions (Benartzi and Thaler, 2007[17]; Jolls, Sunstein and Thaler, 1998[19]; Simon, 1982[19]). Consequently, people do not always act rationally to maintain their standard of living during retirement.

Existing research on behavioural economics have documented that a number of behavioural biases and heuristics act as a barrier to saving for retirement. Behavioural biases include both cognitive and emotional factors that affect individuals’ decision-making process. In addition to these behavioural biases, individuals also use some heuristics, shortcuts or rules of thumbs, which reduce complex problems into simpler judgmental operations (Kahneman, 2003[20]). Box 1 summarizes the common behavioural biases and heuristics, which are often claimed to discourage retirement savings.

<table>
<thead>
<tr>
<th>Box 1. Behavioural Biases and Heuristics in Retirement Savings Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Present Bias</strong></td>
</tr>
<tr>
<td>Individuals have time-inconsistent preferences, which lead them to overweight immediate well-being and to discount the importance of future payoffs. This behaviour, also known as ‘hyperbolic discounting’ in academic literature, has been shown as one of the most important behavioural reasons for inadequate retirement savings (Brown and Previdero, 2014[21]; O’Donoghue and Rabin, 1999[22]).</td>
</tr>
<tr>
<td><strong>Inertia and Procrastination</strong></td>
</tr>
<tr>
<td>Inertia means that people fail to get around to taking action (Byrne and Utkus, 2013[23]), and procrastination refers to a “voluntary delay of an intended course of action despite expecting potential negative consequences for the delay” (Steel, 2007[24]). These two emotional biases act as a barrier to long-term saving, leading people to contribute less into their pension pots and stick to their portfolio allocations (Choi et al., 2002[25]; Madrian and Shea, 2001[26]).</td>
</tr>
<tr>
<td><strong>Loss Aversion</strong></td>
</tr>
<tr>
<td>The prospect theory by Kahneman and Tversky (1979[27]) implies that investors have asymmetric utility functions – they are more likely to avoid losses rather than acquire equivalent gains. Applied to the long-term savings behaviour, this would imply that individuals, who are used to a certain level of disposable income, may not prefer to increase their contributions to pension plans, due to a fear of loss that would be felt with a reduction in the disposable income (Thaler and Benartzi, 2004[28]).</td>
</tr>
<tr>
<td><strong>Framing and Mental Accounting</strong></td>
</tr>
<tr>
<td>The framing effect occurs when people treat a particular option in different ways, depending on the format in which this option is presented. Closely related to framing, mental accounting occurs when individuals treat a sum of money differently depending on its source or intended use. In the context of long-term savings, due to the mental accounting and framing, employees may consider company stock less risky than equity asset class,</td>
</tr>
</tbody>
</table>
which leads them to construct portfolios that are highly concentrated in company stock (Benartzi and Thaler, 2001[29]).

**Saving Heuristics**

Existing studies show that many people use shortcuts or “saving heuristics” especially when deciding about their contributions in retirement savings plans (Benartzi and Thaler, 2001[29]). For example, investors generally pick a round number, typically an exact multiple of 5 percent of their income as a contribution rate into the pension plans.

**Naive Diversification**

In traditional portfolio theory, investors should diversify their investments across different assets to minimize overall portfolio risk for a given level of expected return (Markowitz, 1952[30]). However, to simplify this asset allocation task, many individuals adopt naive diversification strategies by allocating their portfolio equally among the available assets (Benartzi and Thaler, 2001[29]). This simple heuristic, also called ‘diversification bias’, can lead to utility costs in retirement savings when the equal-weights strategy does not match with the investor’s risk preferences.

In order to mitigate these biases, policy makers and academics propose some behavioural policy tools, based on a ‘nudging’ principle. Promoted by Thaler and Sunstein (2007[3]), the “nudge” is a tool that aims to reduce the complexity of decision-making process by altering people’s behaviour in beneficial directions, without limiting any choices or changing economic incentives. In the context of retirement savings behaviour, nudges not only do not impose significant financial costs like traditional policy tools but also simplify long-term saving process by changing the underlying “choice architecture.”

Main types of behavioural interventions (nudging tools) designed to boost retirement savings are:

- **Quick Enrolment**: To encourage higher levels of retirement savings, Choi, Laibson and Madrian (2009[31]) introduce a quick enrolment implementation, by giving employees the option of enrolling into pension plans with pre-determined contribution rates and investment allocation via Quick Enrolment (QE) forms. This intervention allows individuals to reduce the complexity of retirement savings decision by offering a simple binary choice: non-enrolment or accept the pre-determined alternative. According to the research results at one company, participation rates for newly hired employees tripled under Quick Enrolment, from 9 percent to 34 percent (Choi, Laibson and Madrian, 2009[31]).

- **Active Decisions**: Another behavioural policy mechanism that is designed to simplify the retirement savings problem is active decisions, which forces employees to indicate an explicit option between saving in a pension plan or not, without advantaging either outcome (Carroll et al., 2009[32]). Since being passive is not an option in this approach, decision-makers are compelled to think about the retirement-savings problem, regardless of their participation choice. According to Carroll et al. (2009[32]), following the adoption of an active choice intervention, participation rates in 401(k) pension plans increased by 28% relative to standard opt-in enrolment regime.

- **Digital Nudging**: Digital nudging is the application of the traditional nudging concept to the digital sphere by using computer-interface elements - such as web based forms and enterprise resource planning (ERP) screens - to affect the choices.
I. POLICY TOOLS TO ENCOURAGE RETIREMENT SAVINGS

of people in online environments (Weinmann, Schneider and vom Brocke, 2016). For example, based on digital nudging tools, Benartzi (2017) introduces a new robo-saving application, which automatically links individuals’ retirement savings to their income, particularly for those who have a highly variable stream of income such as the self-employed. Similarly, in Mexico, a new savings platform project, called ‘Miles for Retirement’, encourages people to save for retirement while they continue spending for their daily consumption needs. With this low-cost digital platform, a proportional part of the amount spent for a good or service (e.g. a cup of coffee or a movie ticket) automatically goes into the individual’s retirement savings account (Hernandez et al., 2017).

- **Automatic Enrolment**: Among all other traditional and behavioural policy tools, automatic enrolment can be considered as the most effective mechanism to enrol the majority of employees into pension plans. Under automatic enrolment, workers are automatically enrolled to pension schemes by their employers with a predetermined contribution rate and portfolio allocation choice, unless they indicate their preference for not participating into a pension plan in a specified opt-out period. Several studies report a substantial increase in participation rates after the implementation of automatic enrolment and that most of these individuals tend to stay within the pension system. For example, Madrian and Shea (2001) report that, after the implementation of automatic enrolment in a large US corporation, participation rates of new employees increase from 49 percent to 86 percent.

A recent study by Benartzi et al. (2017) compares the relative effectiveness of behavioural interventions and standard policy tools. They calculate both the financial cost of an intervention and also its subsequent effect in increasing the total contributions in the retirement savings accounts. Their findings are summarized in Figure 1. Behavioural intervention turns out to be the most effective tool by far. For every $1 invested in the intervention or policy tool, the active decision nudge generates an increase of about $100 in pension contributions. The closest to this among the standard policy tools is financial education, which generates a return of about $15 only. Matching contribution policies and tax incentives are much less productive.

Given that nudging policy tools are effective in promoting retirement savings and also have lower costs of implementation, some countries such as the US, UK, New Zealand, Italy, Canada, and Turkey have adopted automatic enrolment programmes in their pension systems. Additionally, much earlier than the auto-enrolment idea, some countries such as Sweden, Netherlands, Chile, and Mexico had already introduced mandatory funded pension systems, which require employees to participate in a pension plan, but gives no chance to opt-out. Largely by virtue of economies of scale, these systems also lowered the costs associated with pension provision (Benartzi and Thaler, 2007; Chen and Beetsma, 2015). To get a more detailed picture, in the next section, we compare mandatory and automatic enrolment pension systems in selected OECD countries. Country experiences are then used to develop useful suggestions for the betterment of the recently introduced automatic-enrolment reform in Turkey.
### Figure 1. Retirement Savings (Increase in Contributions for the Year per $1 Spent)

<table>
<thead>
<tr>
<th>Policy Tool/Incentive</th>
<th>Increase in Contributions for the Year per $1 Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active-Decision Nudge (Carroll et al., 2009)</td>
<td>$100</td>
</tr>
<tr>
<td>Financial Education (Duflo &amp; Saez, 2003)</td>
<td>$14.58</td>
</tr>
<tr>
<td>Matching Contributions: 20% (Duflo et al., 2006)</td>
<td>$5.59</td>
</tr>
<tr>
<td>Matching Contributions: 50% (Duflo et al., 2006)</td>
<td>$2.97</td>
</tr>
<tr>
<td>Danish Tax Incentives (Chetty et al., 2014)</td>
<td>$2.77</td>
</tr>
<tr>
<td>U.S. Tax Incentives (Duflo et al., 2007)</td>
<td>$1.24</td>
</tr>
</tbody>
</table>

*Source: Benartzi et al. (2017a), ‘Should Governments Invest More in Nudging?’*
Section II. Comparison of Pension Systems in Selected OECD Countries

In this section, we offer an in-depth comparative analysis of eight countries that have implemented mandatory and automatic enrolment pension systems, including Sweden, the Netherlands, Australia, Chile, Mexico, the United Kingdom, New Zealand and Italy. A majority of these countries have well-developed funded private pension systems, but they also exhibit some important differences in the particular features of mandatory and automatic enrolment programmes. These different institutional and regulatory arrangements in pension systems may provide a rich set of experiences that may be useful and relevant for the recently introduced automatic enrolment reform in Turkey.

Key Parameters of Mandatory and Automatic Enrolment Pension Systems

In order to compare the funded pension systems in these OECD countries, five key features of mandatory and automatic enrolment programmes are analysed: i) target population and coverage rates, ii) contribution rates and financial incentives, iii) default-fund design, iv) fee structures, and v) payout phases.

Target Population and Coverage Rates

As illustrated in Table 2, eligibility of employees for mandatory and automatic enrolment systems mainly depends on age and earnings criteria in selected OECD countries. While, in Sweden, the Netherlands, Chile, Mexico, and New Zealand, pension systems cover all employees who satisfy working age criteria, Australia and the United Kingdom apply earnings threshold rules to enrol employees into pension schemes. Moreover, in order to increase pension coverage rates for self-employed people, in 2012, Chile introduced automatic enrolment system, particularly for this subset of workers.  

Comparing different funded pension systems, mandatory private pension arrangements have the highest coverage rates compared to automatic enrolment and voluntary pension systems. In all countries which apply compulsory pension arrangements, the coverage rates are above 70% (except in Mexico) whereas, in countries adopting automatic enrolment systems, the coverage rates range from 20% to 75%. The lowest pension plan participation rates is most evident in voluntary pension systems among OECD countries (see Figure 2).

---

1 Chile introduced automatic enrolment system for only some categories of self-employed workers, between 2012 and 2017, and no opting out should be allowed after 2018.

2 Coverage rate is defined as “the percentage of the working population (aged 15 to 64) that is enrolled in a private pension plan” (OECD, 2017[37]).
II. COMPARISON OF PENSION SYSTEMS IN SELECTED OECD COUNTRIES

Table 2. Target Population and Coverage Rates in Mandatory and Auto-Enrolment Pension Systems

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of Pension System</th>
<th>Target Population</th>
<th>Coverage Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>Mandatory</td>
<td>Regular employees</td>
<td>90%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Mandatory</td>
<td>Regular employees</td>
<td>88%</td>
</tr>
<tr>
<td>Australia</td>
<td>Mandatory + Auto-Enrolment</td>
<td>Regular employees – Mandatory, Self-employed – Auto-enrolment</td>
<td>84%</td>
</tr>
<tr>
<td>Chile</td>
<td>Mandatory + Auto-Enrolment</td>
<td>Regular employees aged 18 years or over, earnings &gt; AUD 5,400 annual income</td>
<td>79%</td>
</tr>
<tr>
<td>Mexico</td>
<td>Mandatory</td>
<td>Regular employees</td>
<td>61%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Auto-Enrolment</td>
<td>Regular employees aged between 22 years and state pension age, earnings &gt; £ 10,000 annual income</td>
<td>43%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Auto-Enrolment</td>
<td>Regular employees aged 18 to 64 years</td>
<td>75%</td>
</tr>
<tr>
<td>Italy</td>
<td>Auto-Enrolment</td>
<td>Regular employees</td>
<td>20%</td>
</tr>
</tbody>
</table>


Figure 2. Coverage Rates of Pension Plans (as % of the working age population)

Source: OECD (2017)[37], Pensions at a Glance 2017: OECD and G20 Indicators. Data for Finland, Spain and Estonia include coverage rates in voluntary funded pension plans.

On the other hand, compared to other mandatory pension systems, (e.g. Sweden and the Netherlands), Mexico and Chile have relatively low pension coverage rates.³ This is mostly due to the high level of informal employment. Though, in practice a variety of definitions and measurements of informality are used, informal sector workers are generally referred to as those with low incomes or self-employed, earning their income from operating very

³ Australia also seems low but this is largely due to a rule of covering people only with incomes greater than AUD 450.
small unincorporated enterprises, and who have limited access to social security benefits.4

According to the OECD Pensions Outlook (2012[39]), “informality is a major obstacle to achieving high coverage, even in countries with mandatory or quasi-mandatory private pension systems”.

As shown in Figure 3, when the level of informality is measured as a percentage of self-employment in total labour force, it can be seen that Colombia has the highest level of informality at around 55%. Greece, Turkey, Mexico, Italy, Korea, and Chile all have informality rates higher than 25%.

Figure 3. Self-Employment in Selected OECD Countries (% of total employment)

Since informal sector workers have limited coverage by their private pension plans and those enrolled into pension schemes do not have regular payments, in countries with high levels of informality, pension coverage rates need to be measured by the percentage of contributors in the working age population or total labour force. According to the OECD (2012[39]) report, this measure gives better estimation to capture income sufficiency during retirement, relative to measurement of pension coverage based on members. As shown in Figure 4, while the pension coverage rates based on members are 74% and 58% for Chile and Mexico, respectively, these ratios are lowered to 33% and 19%, respectively, when the coverage rate is measured as the ratio of contributors to working age population. In countries with low levels of informality, however, such differences in the coverage rates are much smaller. Given the high pension coverage gap, due to the large informal and self-employed sector, Chile introduced automatic enrolment system for self-employed workers in 2012.

---

4 There are other various definitions of informal sector workers, such as, workers not paying taxes, workers not covered by social insurance and workers who are rural entrepreneurs.
Contribution Rates and Financial Incentives

Besides participation and coverage rates, the level of contributions and financial incentives are also critical determinants of individuals’ retirement income. Table 3 summarizes the contribution rates (by employee and employer) and financial incentives (by government) provided in mandatory and automatic enrolment pension systems for an average worker. In countries applying mandatory pension systems, total contribution rates are generally around 10% in Sweden, Australia, Chile, and Mexico. In addition to the employee contributions, Sweden, the Netherlands and Mexico also offer employer contributions in their mandatory pension plans and the UK and New Zealand in their automatic enrolment plans, to provide an additional source of pension benefits for employees. The highest level of employer contributions are found in the Netherlands (11.2%); Australia (9.5%) and Sweden (4.5%-30%), followed by New Zealand (3%) and the United Kingdom (3%).

Differently from other countries, the United Kingdom and Australia apply calendar-based incremental increases on employee and employer contributions. Before April 2018, the minimum contribution rate under the U.K. automatic enrolment system was 2%, of which at least 1% must be paid by the employer. In April 2018, this rate increased to 5% of qualifying earnings of which at least 2% must be paid by the employer. Finally, in April 2019, the minimum contribution level will rise again to 8% of qualifying earnings, of which at least 3% must be paid by the employer. Similarly, in Australia, the current employer contribution of 9.5% will increase gradually to 12% by 2025. According to the Royal London (2017[41]) report, due to the phasing of contribution rates, employers and workers have the comfort of spreading the cost of pension contributions over a period of time.

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5 Qualifying earnings can be defined as a band of gross annual earnings used to calculate contributions for auto enrolment. For the 2018/19 tax year this amount is between £6,032 and £46,350 a year.
Table 3. Contribution Rates and Financial Incentives in Mandatory and Auto-Enrolment Pension Systems

<table>
<thead>
<tr>
<th>Country</th>
<th>Minimum Contribution Rate</th>
<th>Financial Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>Employer: 4.5% for earnings under 7.5 IBA (income base amount), and 30% for earnings over 7.5 IBA</td>
<td>Tax Incentives</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Employee: 6.4% - Employer: 11.2%</td>
<td>Tax Incentives</td>
</tr>
<tr>
<td>Australia</td>
<td>Employer: 9.5% but will increase gradually to 12% by 2025</td>
<td>Tax Incentives</td>
</tr>
<tr>
<td>Chile</td>
<td>Employee: 10%</td>
<td>Tax Incentives, State Matching Contributions, and State Subsidy</td>
</tr>
<tr>
<td>Mexico*</td>
<td>Employee: 1.125% (IMSS) or 6.125% (ISSSTE) Employer: 5.15% (IMSS) or 5.175% (ISSSTE) Government: 0.225% (IMSS)</td>
<td>Tax Incentives, Social Quota, and Solidarity Savings</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Employee: 3% but will increase to 5% in 2019 Employer: 2% but will increased to 3% in 2019</td>
<td>Tax Incentives</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Employee: 3%</td>
<td>Government match up to NZD 10/week</td>
</tr>
<tr>
<td>Italy</td>
<td>Employer: 6.91%</td>
<td>Tax Incentives</td>
</tr>
</tbody>
</table>

Note: Mexico offers two different DC plans under the mandatory pension system. While IMSS is a fully funded DC scheme for formal private sector employees, ISSSTE is based on funded DC individual accounts for public sector workers.


In addition to employer contributions, all mandatory and automatic enrolment pension systems in these OECD countries except for New Zealand, offer some form of tax incentives for pension plan participants (see Table 3). As regards financial incentives, three countries (Chile, Mexico and New Zealand) are particularly worth mentioning. In Chile, the government provides a subsidy for women at each live birth (equivalent to 18 months contributions levied on the minimum wage, capitalized in the individual account until age of retirement 65) and matching contributions for low-income young workers to promote retirement security. Similarly, the Mexican government offers two types of matching contributions under the compulsory pension scheme: the social quota and solidarity savings incentives. The social quota is a fixed amount of state subsidy, proportional to the number of days contributed by the individual, and the solidarity savings mechanism provides a match rate of 325% for public sector workers, who can contribute voluntarily between 1% and 2% of their earnings (with a ceiling of 10 times the minimum wage) under this programme. Finally, in New Zealand, the government fully matches individuals contributions up to NZD 10/week.\(^6\)

**Default-Fund Design**

Several academic studies (Beshears et al., 2009[42]; Madrian and Shea, 2001[26]) and selected country experiences with mandatory and automatic-enrolment systems show that a high percentage of members passively adopt default fund options in their pension plans. As illustrated in Table 4, between 50-100% of employees select the default fund in mandatory

---

\(^6\) Until May 2015, the government also paid a tax-free $1000 kick-start contribution to new KiwiSaver accounts.
and automatic enrolment programmes. As such, well-designed default funds are critical in ensuring adequate income during retirement and their policy implications are critical. As Byrne and Utkus (2013[23]) point out: “Put simply, well-chosen default funds will benefit members, and poorly chosen default funds will impose a cost on uninformed members.”

Table 4 summarizes the main types of default funds and other fund choices adopted by each country. New Zealand and Italy offer conservative funds and all other countries in our sample offer life-cycle funds as default options in their pension plans.

<table>
<thead>
<tr>
<th>Country</th>
<th>% Members in the Default Fund</th>
<th>Type of Default Fund</th>
<th>Other Fund Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>92.50%</td>
<td>Life-cycle Funds (APT)</td>
<td>Nearly 800 private fund choices</td>
</tr>
<tr>
<td>Netherlands</td>
<td>No default fund</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Australia</td>
<td>42%</td>
<td>Life-cycle Funds</td>
<td>Superannuation Funds- Cash (100% in deposits), Conservative (30% in shares and property), Balanced (70% shares and property), Growth (85% shares and property), Ethical Fund and MySuper Funds (low-cost investment option)</td>
</tr>
<tr>
<td>Chile</td>
<td>60%</td>
<td>Life-cycle Funds</td>
<td>5 funds 5-80% equity limits with bands</td>
</tr>
<tr>
<td>Mexico</td>
<td>99%</td>
<td>Life-cycle Funds</td>
<td>5 funds 0-45% equity limits</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>60-100%</td>
<td>Life-cycle Funds</td>
<td>NEST Funds- Pre-retirement Fund, Higher Risk Fund, Lower Growth Fund, Ethical Fund, Sharia Fund, and Climate Fund</td>
</tr>
<tr>
<td>New Zealand</td>
<td>93% (members in employers- chosen pension scheme)</td>
<td>Conservative Fund</td>
<td>KiwiSaver Funds- Low risk (100% bonds), Defensive (&lt; 20% invested in growth assets), Conservative (30% shares and property), Balanced (50-50% high risk and low risk investments), Growth (70-85% shares and property), and Aggressive (90% or more shares)</td>
</tr>
<tr>
<td>Italy</td>
<td>NA</td>
<td>Conservative Fund</td>
<td>Guaranteed Funds, Balanced Funds, Bond Funds, and Equity Funds</td>
</tr>
</tbody>
</table>


Life-cycle funds in these countries tend to fall into the four main categories:

**Standard Life-Cycle Fund Design**

A typical life-cycle fund portfolio structure is based on life-cycle economics and the human capital / financial capital framework. Accordingly, younger investors can invest in riskier portfolios because they have time to ride out market fluctuations whereas older investors closer to retirement want to preserve their savings and prefer a less risky allocation (see (Merton, 1969[49]), and (Bodie, Merton and Samuelson, 1992[50])). As a consequence, these funds support a larger allocation to equities for young individuals, declining to a less risky allocation as the investor approaches retirement as can be seen in Figure 5. In the United States, life-cycle funds, also called target-date funds, are widely used as default funds, for those who do not adopt an alternative investment allocation in their pension plans and more than half of defined-contribution plans offer these funds as a default (e.g. Vanguard, T. Rowe Price, Fidelity, U.S. TSP plan, etc.). In our sample of OECD countries, Australia offers similar standard life-cycle funds in its mandatory pension plans.
Another default-fund structure that is worth to mention is the life-cycle fund design promoted by U.K. NEST default fund plan. The glide path (asset allocation structure) of NEST default fund is defined by different risk levels (depending on financial market conditions) for each investment phase (foundation, growth, and consolidation phases) (see Figure 6). In contrast to typical U.S. life-cycle funds, NEST retirement-date funds have a more conservative approach at early ages of pension plan members. This different structure of NEST default funds is behavioural and it is related to the concept of loss aversion as

Source: NEST (2013[52]), ‘NEST’s Investment Approach’.

Source: Vanguard (2015[51]), ‘Vanguard’s Approach to Target-date Funds’.

U.K. NEST Life – Cycle Fund Design

Source: Vanguard (2015[51]), ‘Vanguard’s Approach to Target-date Funds’.

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defined in Section I. As stated by the Center for Retirement Research report (Sass, 2014[53]): “When researching their investment options, NEST heard many young workers say they might stop saving if they saw the value of their account fall. So NEST adopted an investment strategy designed to produce rising nominal balances for workers just starting out.”

**Chile Multi Funds Life – Cycle Design**

The life-cycle fund structure in Chile assigns the mandatory savings into three funds according to participants’ age and gender. Similar to typical life-cycle design, a fund that has more equity exposure corresponds to the younger members and a fund that has more fixed-income related assets corresponds to the older members (see Figure 7). The pension contributions by men and women under 35 years of age will be in Fund B, which is the riskier option in the Chilean pension system. The participants’ funds will then be transferred at a rate of 20% per year to the intermediate Fund C for men aged 36-55 and for women aged 36-50 years. Finally, when women reach 50 and men 55, their balances are transferred to the conservative Fund D, at a rate of 20% per year. The most risky fund choice Fund A and the most conservative fund choice Fund E are not included in the default fund structure.

![Figure 7. Chile - Multi Funds Life-Cycle Design](image)

Source: BBVA (2010[54]), ‘Multi-funds in the Chilean Pension System’.

**Sweden & Hong-Kong Mixed Funds Life – Cycle Design**

As shown in Figure 8, Sweden (AP7) and Hong-Kong (MPFA) pension systems have selected a default fund design, which allocates a pre-determined percentage for risky and fixed-income securities on the basis of three different age groups. For members of the AP7 default fund in Sweden, the initial asset allocation starts with 100% equity, and then the fund annually rebalances its holdings from age 56 to the allocation of 33% equity and 67% fixed income at age 75. According to the Pensions Commission Report (2005[55]), since the Swedish public pension system offers a high level of retirement security for the pensioners, it is optimal to design a default fund structure in the funded pension system that invests substantially into higher return assets at the cost of higher short-term risk. Similar to Sweden, the asset allocation of Hong Kong (MPFA) default fund is static between the ages of 18 and 49, which is adjusted linearly each year between the ages of 50 and 64 and is static after the age of 65, with 80% in assets with lower risk and 20% in assets with higher risk.
In two automatic enrolment systems (New Zealand and Italy), the default option is a conservative fund, which invests highly on fixed-income assets. Although, the main motivation behind this idea is to preserve pension members’ accumulated savings, Rinaldi (2011[57]) states that, one of the reasons of limited success in automatic enrolment programme in Italy was the conservative design of the default investment strategy.


Figure 8. Sweden (AP7) and Hong Kong (MPFA) Mixed-Funds Life-Cycle Design

In two automatic enrolment systems (New Zealand and Italy), the default option is a conservative fund, which invests highly on fixed-income assets. Although, the main motivation behind this idea is to preserve pension members’ accumulated savings, Rinaldi (2011[57]) states that, one of the reasons of limited success in automatic enrolment programme in Italy was the conservative design of the default investment strategy.
Fee structure

The countries in our study can be classified into three main groups, depending on their default fund fee structure in mandatory and automatic enrolment pension systems:

- Some countries such as Sweden and the U.K. use government-run default funds in their pension systems. The main advantage of government-based structures is a centralized administration of individual pension accounts, which necessarily reduces management costs incurred by plan members.

- Chile’s pension system adopts a fee selection criteria in default pension plans, where the pension fund company (AFP) that offers the lowest management charge is designated as the fund provider for a two-year period for all new members of the pension system. One major advantage of this type of default structure is to increase competition among the pension funds, leading to the reduction in administration fees. Since 2010, four tender rounds were launched among six pension fund companies (Capital, Cuprum, Habitat, Modelo, Planvital and Provida) in Chile. Planvital was the only participant and the winner of the last fee-based tender in 2016, with administration fee at 0.41%. Given this significantly low administration fee level, no AFP participated in the 2018 tender. Planvital increased its fee to 1.16% of salary in August 2018 (when the 2016 tender period finished). From August 2018, new entrants who do not choose any pension fund company will be automatically assigned to Modelo, with administration fee at 0.77%.

- Three other countries (Mexico, Australia and Italy) choose to apply private default fund structure in their pension systems. In Mexico, default fund providers are selected by supervisory authorities based on their previous net performance (IOPS, 2014).

- In New Zealand, default fund providers are chosen by the government through a tender process depending on various criteria. The providers winning the tender are appointed as default providers for a seven year term, and only receive individuals who do not choose their provider and work with an employer who has not designated a scheme. Main criteria for selecting default providers focus on investment capability, corporate strength, administrative capability, track record, stability, and fee levels. The 2014 tender also included a new criterion, which requires providers to offer investor education to default members.

Pay-out Phase

There are four broad payout products in DC pension plans that are critical for well-designed decumulation phase: lump sums, programmed withdrawals, life-annuities and combination arrangements (hybrid solutions, e.g., phased withdrawals combined with advanced life deferred annuities).

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7 The average fee is calculated as % of monthly income of pension members.

8 According to the fee-based tender rules indicated in the ASFA (2017) report; “for an AFP to win the tender from the incumbent AFP, its bid must be lower than any AFP’s fee on offer in the market at the time that the tender is conducted.”

9 The number of providers selected at the end of each tender was six in 2007 and nine in 2014.
**Lump-sums**

Under this retirement pay-out option, accumulated pension assets are received in the form of a single lump-sum payment, which provides total flexibility to pensioners in terms of spending their savings (e.g. paying-off debt, covering medical or travel expenses, investing in financial markets and purchasing a house).

Compared to some other pay-out schemes, there are various advantages of lump-sums for pension plan sponsors, administrators and members. From the perspective of pension plan sponsors and administrators, they do not have to deal with complex calculations and high operational work, resulting in low administrative costs. Further, pension plan sponsors are solely responsible to pay a single lump sum to retirees and are not required to bear any further duties, such as account recordkeeping or ongoing communication with plan members.

With regards to the benefits of retirees, lump sum payments provide complete liquidity and permit pensioners to leave bequests. On the other hand, since this self-annuitization strategy does not provide any protection against longevity risk, retirees can run out of their sources in the case of inefficient management of money. Further, depending on the portfolio composition of their pension savings, they are subject to investment (interest rate, stock market, exchange rate) and inflation risk (see Table 5).

**Table 5. Protections and Benefits Offered for Retirees in the Selected Pay-out Options**

<table>
<thead>
<tr>
<th>Pay-out Product</th>
<th>Longevity Risk</th>
<th>Protections offered</th>
<th>Inflation Risk</th>
<th>Flexibility / Liquidity</th>
<th>Benefits offered</th>
<th>Tax Deferral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump-sum</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Programmed withdrawals</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Level annuities</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Limited/No</td>
<td>No</td>
</tr>
<tr>
<td>Inflation indexed annuities</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Limited/No</td>
</tr>
<tr>
<td>Variable annuities</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Limited/No</td>
<td>Yes</td>
</tr>
<tr>
<td>Advanced life deferred annuities</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Limited/No</td>
<td>Yes</td>
</tr>
</tbody>
</table>


**Programmed withdrawals**

As an alternative to providing lump-sum benefits for retirees, programmed withdrawals (PW) allow individuals to draw down a portion of their retirement income in a series of scheduled fixed or variable payments, based on some specific withdrawal rules and restrictions. One of the most commonly used method in determining the amount of scheduled payments is to define a withdrawal fraction (e.g. a fixed number or remaining life-expectancy) and calculate the pension income that can be paid each period according

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10 With bequests, retirees have the right to transfer accumulated pension benefits to their spouse, children or other beneficiaries.
II. COMPARISON OF PENSION SYSTEMS IN SELECTED OECD COUNTRIES

While PW provides most of the benefits that are included in lump-sums, (e.g. accessing to liquidity and leaving bequests) it still does not fully protect from the risk of outliving one’s resources during retirement.

**Life-Annuitics**

In contrast to lump-sum payments and programmed withdrawals, life-annuities have the advantage of total protection against longevity risk, since retirees can receive their accumulated savings as a guaranteed steady stream of income as long as they live. On the other hand, this retirement payout option does not allow for flexibility, liquidity, and bequests.

To cope with the limitations of conventional life-annuities, other structured annuity products are offered by insurance companies, which aim at introducing some additional benefits to retirees at the expense of paying higher annuity prices, accepting lower initial annuity payments and limited protection against some risks (e.g. longevity risk).

Given the focus of this report, we summarize the most common types of life-annuities (see Box 2), which are offered by selected OECD countries in our study.

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**Box 2. Common Types of Life-Annuity Products**

**Level/(de)escalating annuities**

Level annuities are the simplest form of annuity products, which provide a constant stream of pension income for retirees over the life-time. Payments of these annuities can increase (escalate) or decrease (de-escalate) over time by a specific amount. To meet the liabilities of these annuity payments, insurance companies collect premiums from individuals at the time of purchasing an annuity and invests them mostly in fixed-income bonds.

**Inflation indexed annuities**

One of the particular types of escalating annuities are called ‘inflation-indexed annuities’, which protect the purchasing power of retirement income by changing the level of pension benefits depending on the inflation rate in each period. To provide a pension income whose value increases in line with a specific percentage/inflation at each year, inflation-indexed annuities typically offer lower starting payments relative to the fixed level annuities with the same purchase price.

**Variable annuities**

Variable annuities are tax-deferred retirement vehicles, where the amount of annuity payments varies with the performance of the investment options (e.g. equity index or investment index) that retirees select. These annuity products are particularly designed for individuals with high-risk tolerance and long-term horizon preference. In addition to the advantage of offering high variety of investment options, variable annuities have lower annuity prices (no investment risk for insurance company), lower annuity price volatility (less exposure to the fluctuation of interest rates as in conventional annuities) and greater transparency (more transparent fee structure), compared to other annuity products.

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11 Other rules/restrictions include using a prescribed formula determined by law and imposing minimum or/and maximum limits on the accumulated savings that can be withdrawn (Financial Services Commission, 2014).
Advanced life deferred annuities

In a typical advanced deferred annuity arrangement, individuals contribute to their pension pots during the accumulation phase, purchase an annuity contract at retirement, and receive periodic payments at an advanced old age (the deferred period could be as long as 20–25 years after retirement). These annuity products provide a longevity insurance for individuals, who are more likely to have very long-life expectancies, without the risk of outliving their sources. Further, since retirees receive their pension payments after a delay period from the purchasing of an annuity contract, deferred annuities are much cheaper than conventional annuities.

Combination Arrangements

In addition to offering one form of payout option (lump-sums, programmed withdrawals, and life-annuities) for the decumulation phase, any combination of these products can be designed to allow for flexibility, liquidity, bequests and higher investment gains, whilst at the same time to provide some degree of protection against longevity risk.

With respect to the payout options they permit for the payout stage, we can classify the eight countries under review as follows:

**Sweden and Netherlands**

Retirees are allowed to take their pension benefits only in the form of life-annuities. Under Premium Pension Authority (PPM) plan in the Swedish pension system, the annuitization is mandatory and accumulated savings are either converted into level annuities or into variable annuities.12 In the Dutch pension system, while level annuities are the only form of payout options, with the recent law introduced by the Dutch parliament in 2016, pensioners are also permitted to invest their DC assets into variable annuities (Balter and Werker, 2016[61]). Similar to Sweden, Netherlands also applies mandatory annuitization in the payout phase.

**Australia**

Without imposing any restrictions, Australia allows retirees to choose between three types of payout options: lump-sums, programmed withdrawals, and life-annuities. Programmed withdrawals (called “allocated annuities” in Australia) is the most popular option, followed by lump-sum payments. On the other hand, despite a wide range of annuity products offered by insurance companies, demand for life-annuities is very low. The main reason for low annuitization rates in Australia is the maturity of the pension system, which was started in 1992 only. As the system matures, more and more people will have accumulated larger pots at retirement and it is expected that a larger proportion will choose annuities.13

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12 For occupational pension schemes, according to the rules of collective labour agreements, annuitization can be either mandatory or voluntary.

13 Other reasons for low annuitization include lack of concern about longevity risk, high annuity prices, the absence of restrictions on lump-sums and programmed withdrawals, and probably several other behavioural biases (O’Meara, Sharma and Bruhn, 2015[83]; World Bank, 2011[59]).
**Chile and Mexico**

In Chile and Mexico, pensioners are not allowed to take their retirement capital as a lump-sum, except under certain narrowly specified conditions. Under programmed withdrawals, annual payments are calculated by a formula based on the life expectancy of the pensioner and his family group. If this calculated amount is less than the amount of guaranteed minimum pension, retirees are required to receive the minimum pension offered by the government. In both countries, annuities may be purchased only by individuals who can accumulate to a retirement capital that can yield an annuity higher than the minimum pension guarantee. Otherwise, retirees are obliged to receive their payments under the programmed withdrawals option.

In Chile, life-annuities are mandatory for individuals who prefer to use the right of early retirement option. Almost 85% of early retirees have annuitized and approximately 70% of decumulation assets are transferred into annuities. In Mexico, annuity product markets are thin and insurance companies can offer only one annuity product - a single premium inflation-indexed annuity – to pensioners.

**U.K., Italy and New Zealand**

In these countries, pensioners can freely select lump-sums and annuity payout options for the decumulation phase. In the U.K., with the introduction of new regulation in 2015, the government removed compulsory annuitization, introduced more flexibility to income drawdown rules and increased the size of the pension pot that could be taken as lump-sums. Although it is expected that the annuity markets share will shrink with the removal of mandatory annuitization, the U.K. so far has the world’s most developed annuity market, accounting for more than half of the annuities sold in the world (Blake and Turner, 2014).

In Italy, pensioners are allowed to take some percentage (between 25% and one-third) of their accumulated balance as a lump sum payment. When preferred by retirees, (closed) pension funds can buy an annuity on their behalf. However, the annuity market is very small in Italy, possibly due to the high replacement rates in the public pension system (65%) and high annuity prices (Guazzarotti and Tommasion, 2008).

In New Zealand, pension payments to retirees can be made either in lump-sums or life-annuities. However, due to the undeveloped annuity markets the demand for life-annuities is very small with only few providers in the market. Similar to Australia, some explanations for the low level of annuitization in New Zealand include immaturity of the pension system, high annuity prices, demand for other payout options, lack of inflation-protected annuities and possible behavioural biases (Asher and Kimura, 2015; Financial Conduct Authority, 2014).

According to the OECD (2016) report, the most effective way of designing the payout phase is to offer a combination arrangement with programmed withdrawals and deferred annuity purchased at retirement. While programmed withdrawals can provide flexibility, liquidity and bequest advantages during the early years of old age (say, from 65 to 84), with deferred life-annuity bought at retirement, individuals can be protected from longevity risk after age 85.

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14 In Chile, upon retirement, workers are allowed to take some part of their savings – in excess of the amount needed to pay a pension that is equivalent to 70% of pensionable salary and 120% of the minimum pension - as a lump-sum. In Mexico, retirees may withdraw any balance if the individual account will pay a pension at least 30% more than the minimum pension.
On the other hand, country examples in our study show that the level of annuitization is significantly low in countries where the annuity purchase is not compulsory (e.g. Australia, New Zealand and Italy). Thereof, mandatory annuitization can be considered as an effective solution to protect retirees against longevity risk. Further, to increase the number of providers and competition in the annuity markets, governments may encourage the development of longevity hedging products in private markets.
Section III. Policy Suggestions for the Turkish Pension System

The Turkish private pension system is relatively new with a short history of only 15 years, but with a rich track record of policy changes and fast evolution. The most recent change was the introduction of the automatic enrolment system in 2017, which makes Turkey the second EM country after Chile with auto enrolment. However, the opt-out rate so far has been very high at around 54% and this is very different from the experiences of countries such as the UK and New Zealand. In this regard, by learning from the experiences of such more successful cases, Turkey can do a lot to improve and grow its pensions market. Naturally, country-specific demographics, income distribution and savings behaviour have to be considered in the design of new policies. For example, in Turkey, minimum wage earners account for approximately 40% of the working age population. At a first-step analysis, these people have to give priority to current spending for livelihood, not leaving much to save for the future. Furthermore, despite much regulatory effort in recent years, the Turkish asset management industry is still underdeveloped and there is a lack of product diversity for long-term savings purposes. This has resulted in savings outside of financial markets and people have traditionally invested in real estate and precious metals for long-term financial security. In this section, considering both the experiences of the eight OECD countries and also country-specific characteristics, some policy changes are suggested for the Turkish pension system, which can also be useful for other EM countries.

Overview of the Turkish Pension System

As summarized in Figure 9, the Turkish pension system consists of three pillars: i) mandatory PAYG public pension system, ii) occupational (mostly DB-type) pension plans, and iii) the voluntary private pension system with fully-funded DC schemes.

Pillar 1

The first pillar of the Turkish pension system is the PAYG social security programme, which covers employees’ old-age pension benefits and other social protection needs such as health care, survivorship, disability, work-related accident and occupational diseases, unemployment, and life insurance. Under the social security system, the state pension has an earnings-related defined-benefit pension scheme, supported by a means-tested safety net and a flat-rate pension. Currently, the minimum retirement ages are set at 58 for women and 60 for men, to be raised gradually to age 65 by 2048 for both genders. In order to become eligible for old-age pension benefits, employees have to complete at least 7,200 days of contribution period in the system.

15 The calculation of pension benefits is based on average lifetime earnings plus revaluation in line with inflation change and real GDP growth.

16 Alternatively, new entrants to the pension system (after October 2008) can retire at 65 with at least 5,400 days of contributions.
Before 2006, there were three main social insurance schemes in Turkey that cover workers from different professions: Social Insurance Institution (SSK) for private and public sector wage-workers, Government Employees’ Retirement Fund (ES) for civil servants and armed forces, and the Social Security Institution for Tradesmen, Craftsmen and Other Self-Employed People (BAGKUR) for self-employed workers and farmers. However, mainly due to the relatively higher social benefits provided for civil servants (e.g. pension entitlements), in 2006, these three institutions were merged under one single organization, called the Social Security Institution (SGK), which offers equal social benefits for workers regardless of their employment type.

Both employees and employers registered at SGK are required to make compulsory contributions to cover the expenses of retirees’ benefits. Currently, the total contribution rates as a percentage of gross salaries are 14% for employees and 20.5% for employers, adding up to 34.5% of gross income. The breakdown of the 14%-employee (20.5%-employer) contribution is 9% (11%) for old-age pension benefits, disability and survivorship insurance and 5% (9.5%) for other social security benefits (Social Security Institution, 2017[68]).

As of year-end 2008, the Social Security System covered around 81% of the working population in Turkey (IBP, 2013[69]). Moreover, the first pillar of the Turkish pension system provides a net replacement rate (ratio of net retirement income to net pre-retirement earnings) of about 102%, the highest ratio among OECD and EU countries, after Croatia (see Figure 10). However, despite relatively high coverage and contribution rates, the Turkish social security system has large and growing budget deficits. As illustrated in Figure 11, the amount of government transfers to the social security system increased more than three times from less than 40 billion TRY in 2008 to 130 billion in 2017, which accounts for about 4% of GDP.\footnote{The origin of these deficits is the 1992 pension reform, which decreased retirement age from 50 to 38 for women and from 55 to 43 for men. In 1999, the retirement age was increased to 58 for women and 60 for men.}
Further, in spite of Turkey’s currently younger demographics compared to other OECD countries, it is expected that the population aged over 65 years will increase from 8.5% in 2017 to 27.7% in 2075. Given this increasing life-expectancy trend and steep decline in fertility rates over the past decades, the old-age dependency ratio in Turkey (13.4%) is projected to be approximately equal to the OECD average (55.4%) in 2075 (OECD, 2017[37]). As a consequence, pending politically-difficult parametric changes, it is highly probable that large fiscal deficits in the Turkish Social Security System will continue to increase and induce further pressure on the government’s budget over the long-term.

Although, the 2008 pension reform will increase the age of retirement to 65 for all workers by 2048, other mechanisms should be implemented to guarantee the sustainability of the...
III. POLICY SUGGESTIONS FOR THE TURKISH PENSION SYSTEM

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social security system in Turkey over the long term. According to the OECD Pensions Outlook (2014[71]) report, one of the best approaches to reduce the pressure of ageing populations on public pension systems, is to offer an automatic link between pensions and gains in life expectancy, depending on the varying level of life expectancies among different socio-economic groups (e.g. low or high income). Given that, while some countries such as Italy, choose to link pensionable age to improvements in life expectancy, other countries such as Finland and Portugal offer an automatic link between pension benefit levels and life expectancy.

**Pillar 2**

The second pillar of the Turkish pension system mainly consists of two mandatory occupational pension schemes: OYAK and TTK plans. OYAK has been established to provide pension and other social benefits for military personnel, and TTK pension plan covers employees of the state-owned coal mining companies. In addition to these two, there are about 250 voluntary occupational pension schemes in the second pillar of Turkish pension system and most are very small in size and coverage.

**Pillar 3**

A voluntary private pension system (BES) was first introduced in Turkey in 2003. The main purposes of introducing the third pillar pension were to increase domestic savings rates, enhance the welfare of retirees, and ease the financial burden of the social security system on the Turkish government.

**Basic Characteristics**

The Turkish private pension system is a voluntary fully-funded DC pension scheme. The system currently has 7 million participants and funds totalling to about TRY 80 million (~$18 billion). Unlike many other countries, in Turkey, there is a two-tier intermediation structure in the private pension system; pension companies and portfolio management companies. Pension companies are exclusively authorized to sell pension plans and collect contributions from individuals. As they are not permitted to manage funds, they have to choose a portfolio management company to manage members’ money. In order to prevent monopolistic concentration and potential governance problems, there are certain rules for choosing fund managers for the pension companies. Currently, there are 18 licensed pension companies and 26 portfolio companies managing 408 pension mutual funds (Pension Monitoring Centre, 2017[67]; Turkish Capital Markets Association, 2018[72]). The private pension system is incentivized by certain tax advantages in contribution, investment, and retirement phases. Members are entitled to the full amount of pension benefits when they reach the age of 56, conditional on a minimum 10 years of coverage period.

**Supervision**

In terms of the supervisory structure, The Undersecretariat of Treasury (via the Pension Monitoring Centre) is the main regulator and supervisor of the private pension system. In addition and independently, the Capital Markets Board regulates and supervises pension mutual funds and portfolio management companies in the system. Like intermediation, this is also a two-tier regulatory structure.
**Asset Allocation**

As illustrated in Figure 12, the average asset allocation of pension funds in the private pension system at the end of 2016 was more than 80% in fixed-income securities including some money market instruments, 12-15% in listed equity, and the rest in alternative assets such as precious metals and sukuk bonds. Compared to more advanced pension markets, Turkish pension funds have a markedly low equity exposure. This can be attributed to three main reasons:

1. Largely due to the psychological traces from years of hyper interest rates in 1990’s, investors and fund managers have low levels of confidence in equity markets;
2. Public perception of equity markets is not realistic because of both misinformation about and also measurement errors in equity market performance (Akgiray and Peksevim, 2018[73]);
3. Short-termist approach in fund management and performance evaluation, both by the industry and also by the regulators, is very much visible in Turkey as in many other countries.

**Figure 12. Average Asset Allocation in Turkish Private Pension Funds (%)**

Source: Individual Pension System Progress Report (Pension Monitoring Centre, 2017[67]).

**Fee Structure**

There are three types of fees in the Turkish private pension system: i) entrance fee, ii) management fee, and iii) fund management fee. The entrance fee can be charged only once for the first account of the participant and the management fee covers the administrative expenses. Depending on the risk categories of funds, pension companies can also charge fund management fees. According to IOPS (2014[58]) statistics, the average fund management fee is 2% of AUM. One of the main reasons of high fees is clearly the double agency structure in the Turkish pension system. Since pension companies give some portion of their fees to portfolio management companies, the result is higher total fees (administrative plus investment management) in the pension system. Furthermore, although high management fees are being collected, fund managers generally fail to deliver

18 The cap on management fees is 2% of the contributions in the Turkish private pension system.
satisfactory results and perform worse than the average of passively managed funds (Gökçen and Yalçın, 2015[74]). To increase participants’ satisfaction and to come down to international fee levels, at the beginning of 2016, the government proposed a new regulation to reduce the maximum amount of total entrance fee and annual management fee.\textsuperscript{19}

\textit{Pension Reforms}

Following the introduction of the private pension system in Turkey in 2003, the government introduced two main reforms to increase the size of pension fund assets: i) government matching contributions in 2013, and ii) automatic enrolment reform in 2017. The government matching reform replaces the income tax deductibility of contributions with direct contributions from the state, amounting to the minimum of 25% of employee’s contribution or 25% of the annual minimum wage. This revision was effective in that the size of pension fund assets almost doubled in three years. Despite this sharp increase, the ratio of pension assets to GDP was still one of the lowest (2.5%) among OECD countries. As can be seen in Figure 13, an unintended consequence of the reform seems to have been increased volatility in the level of pension assets, which may partially be related to a moral hazard problem of state matching co-existing with ease of exit. To further boost the size of pension fund assets and participation in the system, the government subsequently introduced automatic enrolment in January 2017.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure13.pdf}
\caption{Total Pension Fund Assets in Turkish Private Pension System (USD millions)}
\end{figure}

\textit{Source: Pension Monitoring Centre (2018[13]) Database.}

\textbf{Automatic Enrolment Reform}

In an effort to promote pension savings and retiree welfare, the Turkish government amended the Private Pension Savings and Investment System Law in January 2017, introducing the automatic enrolment of employees in the private pension system. Under the new rule, the automatic enrolment programme also covers the employees who have already

\textsuperscript{19} This regulation also includes the gradual reimbursement of annual fund management fee.
voluntary pension plans in the private pension system BES. Box 3 summarizes the key elements of the reform. Currently, total pension assets managed under the automatic enrolment system is about $670 million and more than 4 million workers have been auto-enrolled into the pension plans. These numbers are expected to increase as the coverage phases progress. However, in contrast to other OECD countries that have adopted similar automatic enrolment systems (e.g. U.K. and New Zealand), opt-out rates reached very high levels at about 54%, making it difficult to predict the future state of the system.

According to a study published by Insurance Association of Turkey (2018[5]), the two most cited reasons given for opting out from the automatic-enrolment system are high level of expenses or debt of plan participants (71%) and lack of affordability of pension contributions (56%). Other important reasons include concerns related to the long-term investment (35%), investments in other savings vehicles (30%), concerns about the investment performance of pension funds (19%), and high level of charges (16%). Given the priority for immediate livelihood expenses and high contribution rates in the mandatory public pension system (14%), it is highly probable that workers under the automatic enrolment programme cannot afford an additional 3% contribution for the private pension system (see Table 6). A recent study by Prabhakar (2017[75]) indicates that lack of affordability is one of the primary reasons behind the opt-outs from the automatic enrolment systems in many countries. It is also mentioned that employer contributions can be used as an additional incentive mechanism for employees to reduce the opt-out rates from automatic enrolment systems.

**Box 3. Key elements of the automatic enrolment programme in Turkey**

**Target Population and Coverage Rates**

Employees under 45 years old as of 1 January 2017, who work in either the private or public sector, must be automatically enrolled by their employers in private pension plans. Under the automatic enrolment programme, employees may choose to opt out of the system within the first two months after the enrolment date. Additionally, employees can also cease membership at any time after the opt-out period. With the introduction of new regulation in December 2018, employees who opt-out from the auto-enrolment programme will be re-enrolled into the private pension system within three years. Currently, 5 million people (approximately 10% of the working age population) have private pension plans under auto-enrolment (Pension Monitoring Centre, 2018[15]). According to the auto-enrolment programme, employees will be gradually included in the plan pursuant to the following calendar based on staff size;

- 1000 and more staff on 1st January 2017.
- 250 - 999 staff on 1st April 2017.
- 100 - 249 staff on 1st July 2017.
- 50 - 99 staff on 1st January 2018.
- 10 - 49 staff on 1st July 2018.
- 5 - 9 staff on 1st January 2019.
Contribution Rates and Financial Incentives

The minimum default contribution rate under the automatic enrolment system is 3% of employees’ gross salary income, however, the contribution amount cannot be below TRY 50 monthly. There is no obligation for employers to make additional contributions to employees’ retirement savings accounts. A government contribution (25% of the employee’s monthly contribution) will be made into the private pension savings accumulated through auto-enrolment, subject to current vesting periods. The government also adds a one-off contribution of TRY 1 000 per employee following the initial enrolment of the employee to the private pension plans. Moreover, there is additional government contribution, in the event of savings being transferred to a minimum 10-year annuity during retirement, of 5% of the assets accumulated at retirement.

Default Fund Design

There is no specific default fund structure in the automatic enrolment programme. As stated by Vakıf Pension, one of the biggest pension fund company in Turkey: “Unless employees prefer any funds at the time of entry in the system, during the first two-month withdrawal period, contributions are directed for investment to the initial fund preferred by either the employee or the employer. The savings of the employees whose period of withdrawal has expired and who have not preferred any fund will continue to be forwarded for investment in the relevant initial fund for the next ten months. The savings of the employees who have completed their first year and have not preferred any fund will be forwarded for investment in the standard fund depending on their initial preference of interest-bearing or interest-free funds” (Vakıf Pension, 2017[76]).

Fee Structure

The private pension companies can only charge a fund management fee to the employees under the automatic enrolment scheme. Depending on the fund performance relative to inflation, the pension fund companies are allowed to charge an additional fund management fee. At the end of each year, if the annual net rates of return exceed certain threshold levels for specific asset classes, an additional performance fee can be charged as a fund management fee. The total fund management fee is capped at a maximum of 0.85% of AUM annually.

Pay-out Phase

Upon retirement, individuals can receive their pension benefits in a lump-sum, programmed withdrawal or a life-annuity form. However, annuity markets are underdeveloped and do not offer a wide range of products for the different preferences of pensioners.

According to the same survey, there is also a lack of confidence in the TRY 1 000 kick-start payment. Although employees obtain the right to receive the kick-start payment after the 2-month opt-out period, they will actually receive the money when they retire at 56. Concerned about the sustainability of this incentive in the future, they do not perceive this incentive as a potentially credible option to stay in the automatic enrolment system.
III. POLICY SUGGESTIONS FOR THE TURKISH PENSION SYSTEM

Table 6. Reasons for Opting Out from the Automatic Enrolment System (%)

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level of expenses or debt</td>
<td>71%</td>
</tr>
<tr>
<td>Lack of affordability</td>
<td>56%</td>
</tr>
<tr>
<td>Concerns related to the long-term investment</td>
<td>35%</td>
</tr>
<tr>
<td>Investments in other savings vehicles</td>
<td>30%</td>
</tr>
<tr>
<td>Concerns about the investment performance of pension funds</td>
<td>19%</td>
</tr>
<tr>
<td>High level of charges</td>
<td>16%</td>
</tr>
<tr>
<td>Lack of confidence about the automatic enrolment system</td>
<td>10%</td>
</tr>
<tr>
<td>Lack of faith-consistent investing alternatives (including interest-free funds)</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Insurance Association of Turkey (2018[5]) “Automatic Enrolment Practice in the Turkish Private Pension System”.

Given the above landscape, it may be useful here to summarize our basic observations about the Turkish pension markets as bases for some policy recommendations:

- Turkey currently has a young population but life expectancies are increasing and fertility rates are decreasing fast. Minimum wage earners make up about 40% of the working age population.
- In its current structure, the state social security system is likely to continue being an increasingly heavier financial burden on the government budget.
- The private pension fund market has grown fast since its inception in 2003 but it is only about 2.5% of GDP. Adding the occupational pension funds, the sum is still only 5% of GDP. This is much lower than the OECD average of 51% (OECD, 2018[77]).
- The recently introduced auto-enrolment programme is planned to increase savings rates and hence the size of the pensions market but observed high rates of early exit can make the plan’s objectives difficult to realize.
- There is public lack of confidence in financial markets (especially in the long run picture) and this seems to stem largely from misconceptions and misinformation about market performance and the consequent poor performance of the fund management industry.

**Policy Recommendations**

**Target Population and Coverage**

Employees should not be allowed to cease their membership in the automatic enrolment system after the opt-out period. Although coverage rates under mandatory enrolment may be significantly higher than automatic enrolment systems, due to the high informality rate in Turkey (32.5%), mandatory enrolment may not achieve the desired rate of coverage (e.g. Mexico and Chile). Therefore, as a first step, unconditional exits from the automatic enrolment system should not be allowed after the initial 2-months opt-out period, maybe except for certain circumstances such as serious illnesses (uncovered by health insurance) and first-home purchases, as in New Zealand. Mandatory enrolment can be considered as a second step, maybe after a decreasing trend in the informality rate can be put in place. Furthermore, the target population of private pensions may be expanded to cover the whole working population between 15 – 64 years of age.
**Contribution Rates and Financial Incentives**

Since the primary reasons for opting out from the automatic enrolment system are stated as high level of expenses and employees’ difficulty in affording contributions to the system, mandatory employer contributions may be considered to partially replace that of employees. Instead of contributing to separate “group pension contracts” as in the current system, it can be much simpler for employers to make contributions into the employees’ individual pension plans. Combined with mandatory employer contributions, the level of government financial incentives may be set as inversely related to employees’ income levels as in Germany’s Riester plans. Although the kick-start subsidy and the 25% matching contribution (up to annual minimum wage) provide relatively higher support for lower income people, the recommendation here goes beyond that. Instead of the kick-start and 25% state subsidies, a flat monetary subsidy may be more effective both in reducing the opt-out rates from the automatic enrolment and also increasing the coverage rate. In this setup, people in the lowest income group receive the highest state support, people in the highest income group receive the lowest (or, no) support, and a progressive schedule for middle income levels. This policy mechanism is justified by the flat gross replacement rate (69.9% for all income groups) in the Turkish public pension system and also by the fact that more than 40% of the working population earn the minimum wage.

**Default Fund Design**

Life-cycle funds such as target-date funds should be popularized as default options in the Turkish DC pension plans. Although there is no regulatory obstacle, the funds industry has yet to design and offer life-cycle funds. Following the country examples in the UK, Sweden, Hong Kong and Chile, there should be an efficient default fund asset allocation structure for participants who do not choose any specific type of fund in their pension plans. As most people are naturally incapable of choosing best-fit funds, regulatory policy can promote and incentivize in some way the offering of optimally designed life-cycle funds by the industry. The design of these life-cycle funds should be optimized according to age, demographic trends, inter-connectedness with the public pension system, and financial markets’ structure in the country.

**Fee Structure**

The two-tier intermediation structure made up of the sequence of pension companies and portfolio management companies necessarily results in high costs of intermediation and loss of focus in assuming responsibility and accountability of performance. Pension policies and related regulation may be revised to eliminate this high-cost intermediation by downsizing to a single intermediary. Moreover, life-cycle default fund providers in the automatic enrolment system may be selected through a tender-based mechanism depending on various criteria such as corporate strength, investment management capability, corporate governance and management fees. The country examples such as New Zealand in this report imply that tender-based selection of default fund providers can reduce overall fees in automatic enrolment schemes.

**Pay-out Phase**

Life-annuity products and mandatory annuitization are critical for well-designed pay-out phases in DC plans. The annuity markets in Turkey are of negligible size and depth. However, these pay-out options are very crucial in providing protection against longevity risk, which would seem to be a particularly critical risk in Turkey where life expectancy is
on the rise. Following the recommendation by the OECD (2016\textsuperscript{60}), the best way of designing the payout phase is to offer a combination arrangement of programmed withdrawals and deferred annuities. However, country experiences in Australia, New Zealand and Italy have shown that, unless compulsory annuitization is applied, there will be a low demand for annuity products. Therefore, mandatory annuitization can be proposed for the decumulation phase in the automatic enrolment system in Turkey. To mitigate with the supply-side challenges in the annuity markets, Turkish securities regulators should also encourage the development of longevity hedging products in private markets.

Without a holistic approach, all of the above recommendations may give rise to extra economic burden on the employers and on the central government. Therefore, as a possible starter for a gradual transformation of the pensions leg of the state social security system to the private pension system, some relief in the employers’ contribution rate in the state system may be considered. Of course, this has to be eventually matched by a reduction in the state’s share of pension benefits at retirement. Finally and most importantly, the inevitable importance of a well developed pensions market for the overall development of capital markets and increase of economic welfare must be well understood and accepted by all involved. This may call for some smart “nudging”\textsuperscript{20}.

\textsuperscript{20} Indeed, the Turkish government took some steps towards ‘nudging’ and established its first behavioural public policy unit ‘Nudge Turkey’ under the Ministry of Economy. By using the principles of behavioural science, the Nudge Turkey aims at developing lower-cost behavioural public policies than traditional policy tools. The Nudge Turkey has currently launched a website project (www.kolaydestek.gov.tr) for the easy understanding of the legislation on export support. Similarly, this unit may also develop some nudging tools to enrol low-income and self-employed people into the private pension system.
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