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Can countries improve the design of financial incentives to promote retirement savings?

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Can countries improve the design of financial incentives to promote retirement savings?

1. Governments have long used financial incentives to promote retirement savings. Financial incentives are meant to encourage participation in retirement savings plans in the hope of making private savings, as a complement to public savings, more attractive and inclusive and boosting overall retirement income. Historically, tax incentives have been the dominant type of incentive, providing a favourable tax treatment to retirement savings as compared to other types of savings. More recently, new types of financial incentive have emerged, not linked to the tax system. These non-tax incentives include matching contributions and nominal fixed subsidies paid into the pension account of eligible individuals.

2. However, time has come to review the design of financial incentives and see whether there is room for improvement. Financial incentives are costly to the government and have come under close scrutiny in an era of budget stringency. In addition, it is important to check whether they are still effective tools to promote retirement savings, taking into account different needs across the population.

3. This document discusses whether countries can improve the design of financial incentives to promote retirement savings and presents policy guidelines that countries could use for that purpose. It brings together four years of analysis conducted by the OECD under the project on Financial Incentives and Retirement Savings and presented at different WPPP meetings. It uses specific measures to compare the outcomes of different designs of tax and non-tax incentives for individuals and governments.

4. All OECD and EU countries offer financial incentives to promote retirement savings which provide an overall tax advantage to individuals when contributing to a retirement plan rather than to another type of savings vehicle, in the form of a reduction in total tax paid over their lifetime. These financial incentives are effective tools to promote retirement savings, although low-income earners are more sensitive to non-tax incentives than to tax incentives. In addition, the total fiscal cost of financial incentives varies greatly across countries, but remains in the low single digits of GDP. Finally, even though different designs of financial incentives may be economically equivalent in certain circumstances, the way individuals perceive them may affect their decisions and influence the amount saved in retirement plans. Countries can therefore improve the design of financial incentives by following a set of policy guidelines.

5. The document is structured as follows. Section 1 describes briefly how countries design financial incentives. Section 2 assesses the overall tax advantage that those incentives provide when individuals save for retirement. Section 3 examines the effectiveness of those financial incentives at increasing retirement savings, while section 4 assesses their fiscal cost. Section 5 compares the pros and cons of different approaches to design financial incentives. Finally, section 6 concludes providing policy guidelines to

assist countries to improve the design of their financial incentives to promote retirement savings.

6. Delegates are invited to comment on the main messages of the document and in particular on the policy guidelines. Delegates are informed that this document, enriched by your comments and reflecting 2018 tax rules, will be published in the 2018 edition of the OECD Pensions Outlook to be launch at the time of the next WPPP meetings scheduled for 3-4 December 2018.

1. How do countries design financial incentives to promote retirement savings?

7. Countries use two types of financial incentive, tax incentives and non-tax incentives, to encourage individuals to save for retirement. Traditional forms of savings are taxed the same way as other income and earnings, with contributions paid from after-tax earnings, the investment income generated by those savings taxed, and withdrawals exempted from taxation. This is generally referred to as the "Taxed-Taxed-Exempt" or "TTE" tax regime. Tax incentives arise from deviating from this benchmark tax treatment. Non-tax incentives include matching contributions and fixed nominal subsidies. These are payments made by the government directly in the pension account of eligible individuals.[1]

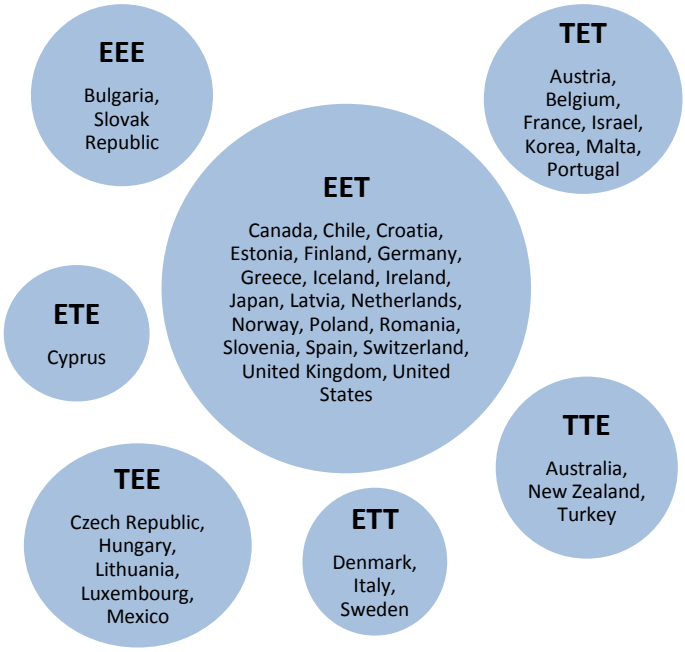
8. To establish the tax treatment of retirement savings, it is necessary to know how contributions, returns on investment and withdrawals are taxed respectively. A preferential tax treatment on those three flows can take the form of tax deductions, tax exemptions, tax credits or rate reliefs. Tax deductions and tax exemptions reduce an individual's taxable income. For example, contributions may be deducted from taxable income (fully or partially) before calculating the tax due, while returns on investment may be excluded from the tax base. With tax credits, the tax liability is first calculated on total taxable income and then reduced by the amount of the credit. A tax credit may be calculated as a proportion of the contributions paid into a retirement savings plan for instance. It is qualified as "non-refundable" when the value of the credit cannot exceed the tax liability. Finally, rate reliefs reduce the tax rate applied on the income flow. For all these tax treatments, caps can be introduced to limit tax relief.

9. The most common tax treatment of retirement savings exempts contributions and returns on investment from taxation while it taxes pension benefits and withdrawals as income. Figure 1 classifies countries according to the tax treatment of contributions, returns on investment and withdrawals for the main retirement savings plan. About half of OECD and EU countries apply a variant of the "Exempt-Exempt-Taxed" ("EET") tax regime. Yet, a wide range of other tax regimes can be found as well, from the "EEE" regime where contributions, returns on investment and pension income are all tax exempt, to regimes where two out of three flows are taxed.[2]

[1] Other types of financial incentive exist but are not considered in this analysis. These include non-tax incentives provided on social contributions (e.g. deduction of pension contributions for the calculation of social contributions, reduced social contribution rate on pension withdrawals) and tax incentives provided to employers (e.g. exemption of employer pension contributions from corporate income tax). Employers may also match employees' contributions.

[2] It is interesting to note that countries exempting all income flows ("EEE") have low personal income tax rates, below 20% for the average earner. Tax relief is therefore given at low rates.

Figure 1. Tax treatment of retirement savings in OECD and EU countries, 2015



Notes: Main pension plan in each country. "E" stands for "exempt" and "T" for "taxed". Countries offering tax credits on contributions are considered as taxing contributions, as the tax credit may not cover the full amount of tax paid on those contributions. [3] [4]

10. Public pay-as-you-go (PAYG) pension arrangements are also generally subjected to the "EET" tax regime, justifying therefore treating savings via funded pension arrangements equally. In most OECD countries, employee's social security contributions are deductible from income, the internal rate of return of the PAYG scheme is exempt from personal income tax, and pension benefits are taxed as income. Of the 18 OECD countries applying the "EET" tax regime to their main retirement savings plan, 13 also apply it to their mandatory PAYG pension arrangement (OECD, 2017[1]).

11. Figure 1 hides the heterogeneity that exists within countries. Indeed, the tax treatment of contributions to retirement savings plans may change according to the source of the contributions (the employee or the employer), their mandatory or voluntary nature, the type of plan in which they are paid (personal or occupational plans), or the income of the plan member. In addition, limits to the amount of contributions attracting tax relief may differ for different types of contribution. In countries where returns are taxed, tax

[3] Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people in the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.

[4] Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

rates may vary according to the duration of the investments, the type of asset class, or the income of the plan member. Finally, the tax treatment of pension income may differ according to the source of the contributions, the form of the pay-out option or the age of retirement.

12. The complexity of the tax treatment of retirement savings may create confusion for individuals and this may have led some countries to introduce more direct, non-tax financial incentives to promote retirement savings (Table 1). These include matching contributions and fixed nominal subsidies. These incentives are provided to eligible individuals who actually participate in or make voluntary contributions to retirement savings plans. Matching contributions correspond to a certain proportion of the individual's own contributions (match rate), up to a maximum, while with fixed nominal subsidies all eligible individuals get the same fixed amount.

Table 1. Government non-tax incentives in OECD and EU countries

Matching contributions (match rate)	Fixed nominal subsidies
Australia (50%), Austria (4.25%), Chile (50% or 15%)*, Croatia (15%), Czech Republic (scale), Hungary (20%), Mexico (325%)**, New Zealand (50%), Turkey (25%)	Chile, Germany, Lithuania, Mexico, Turkey

Notes: Chile has two different matching programmes, one for young low earners (50% match rate) and one for voluntary contributors (15% match rate). The matching programme for Mexico only applies to public sector workers.

2. Does the design of financial incentives provide a tax advantage when people save for retirement?

13. This section assesses whether the design of financial incentives in different OECD and EU countries provides an advantage when people save for retirement. This assessment requires a common metric to compare the outcome of the different tax and non-tax incentives across countries. This section first introduces the metric used and then calculates it for all countries.

How to assess the way in which financial incentives provide an advantage to individuals?

14. Comparing taxes paid when an individual saves in an incentivised retirement plan rather than in a traditional savings vehicle allows one to assess how much tax may be saved by the individual due to financial incentives. Table 2 illustrates how much tax would be paid according to two tax regimes that commonly apply to traditional savings vehicles ("TTE") and to retirement savings plans ("EET"). The calculations assume that an initial contribution of EUR 1 000 is invested for 10 years and earns a constant 5% return. The individual is subject to a 25% marginal tax rate, constant over time. Under the "TTE" tax regime, the individual pays EUR 250 in tax when the contribution is made, so that, after tax, only EUR 750 is actually invested. At the end of each investment year, the individual also pays taxes on investment income, amounting in total to EUR 84.7 in present value. Upon withdrawal, no tax is due and the after-tax withdrawal is equal to EUR 1 083.8. Under the "EET" tax regime, tax is only due upon withdrawal, so that the present value of tax paid amounts to EUR 250 and the after-tax withdrawal to EUR 1 221.7. The individual therefore saves EUR 84.7 in taxes in present value terms when contributing to an "EET" plan rather than to a "TTE" plan. The difference in after-

tax withdrawal is also equal to EUR 84.7 in present value, so the benefit of the incentive can be expressed as a tax advantage or as a retirement income advantage.[5]

Table 2. Overall tax advantage: illustration (in EUR)

	EET		TTE		Difference
	Nominal	PV	Nominal	PV	PV
Pre-tax contribution	1 000.0		1 000.0		
Tax paid on contribution	0.0	0.0	250.0	250.0	
Amount invested	1 000.0		750.0		
Tax paid on returns during investment period	0.0	0.0	111.3	84.7	
Account balance after 10 years	1 628.9		1 083.8		
Tax paid on withdrawal	407.2	250.0	0.0	0.0	
After-tax withdrawal	1 221.7		1 083.8		84.7
Total tax paid		250.0		334.7	84.7
Overall tax advantage					8.5%

Notes: "E" stands for exempt, "T" for taxed and "PV" for present value. The calculations assume that an initial contribution of EUR 1 000 is invested for 10 years and earns a constant 5% return. The individual is subject to a 25% marginal tax rate, constant over time. The discount rate is equal to the rate of return.

15. The analysis calculates the "overall tax advantage", by extending the previous simulation to the entire lifetime of the individual and considering the particularities of different tax regimes. The overall tax advantage should not be confused with the incentive to save (Box 1). The overall tax advantage is defined as the difference in the present value of total tax paid on contributions, returns on investment and withdrawals when an individual saves in a benchmark savings vehicle or in an incentivised retirement plan, given a constant contribution rate during the entire career. It is expressed as a percentage of the present value of pre-tax contributions. The overall tax advantage therefore represents the amount saved in taxes by the individual over working and retirement years when contributing the same amount (before tax) to an incentivised pension plan rather than to a benchmark savings vehicle. The impact of both tax and non-tax incentives is reflected in the overall tax advantage as non-tax incentives are interpreted as refundable tax credits paid into the pension account.

[5] The tax advantage and the retirement income advantage differ when the discount rate is not equal to the rate of return.

Box 1. Difference between the overall tax advantage and the incentive to save

A positive overall tax advantage means that the individual would save in taxes paid when contributing to an incentivised retirement plan rather than to a benchmark savings vehicle. It does not mean that the individual has a larger incentive to save rather than to consume.

The incentive to save is measured by the difference between the before-tax and after-tax rates of return. A tax system is neutral when it does not distort individuals' choice over when to consume their income between today or in the future. This is achieved when the after-tax rate of return is equal to the before-tax rate of return.

As explained in Mirrlees et al. (2011[2]) for example, taxing returns creates a disincentive to save because the present value of the income is greater if it used for consumption today than if it is used for consumption tomorrow. A "TTE" tax regime therefore incentivises consumption rather than savings. In the example from Table 2, the after-tax rate of return with the "TTE" tax regime is equal to 3.75%, which is lower than the before-tax rate of return of 5%.

By contrast, an "EET" tax regime is neutral between saving and consuming (the after-tax rate of return is equal to 5%), provided that the individual faces a constant tax rate over time. When the tax rate on withdrawals is lower than the tax rate at which contributions were deducted, the after-tax rate of return is greater than the before-tax rate of return, creating an incentive to save. When the opposite is true, for example due to a loss of entitlement to a means-tested public pension, the after-tax rate of return is lower than the before-tax rate of return, leading to an incentive to consume.

Upfront taxation of retirement savings, "TEE", also achieves tax neutrality between saving and consuming, as long as returns are not above the "normal return to saving". The normal return to saving is the return that just compensates for delaying consumption. It is also often called the risk-free return (Mirrlees et al., 2011[2]).

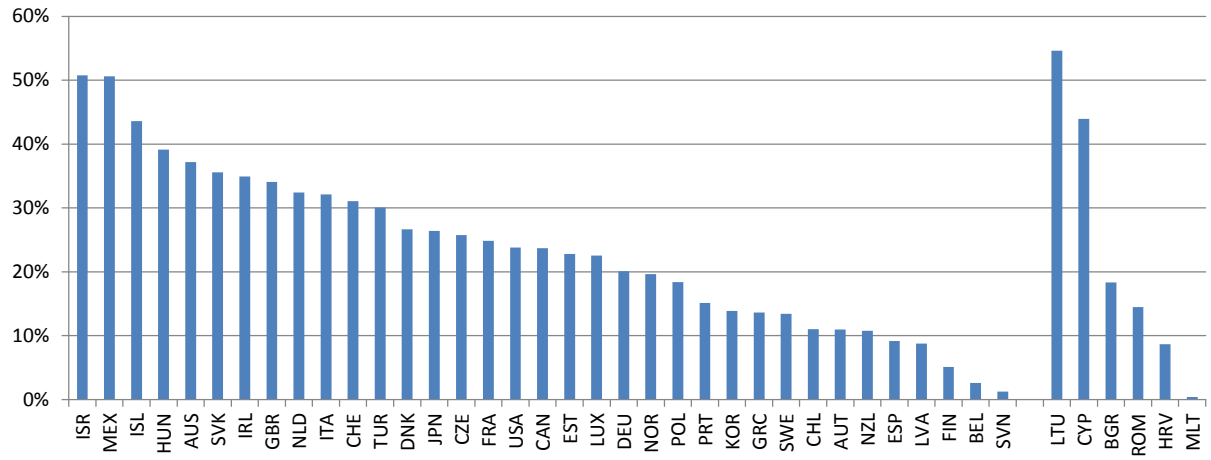
Overall tax advantage offered in different countries

16. Across OECD and EU countries, average earners save in taxes paid over their lifetime by contributing the same pre-tax amount to a retirement savings plan rather than to a traditional savings account. This amount varies from 1% of the present value of all contributions in Slovenia, up to 51% in Israel and Mexico and 55% in Lithuania (Figure 2). Some of the largest private pension markets, like Canada, Denmark, the Netherlands, Switzerland, the United Kingdom and the United States, provide overall tax advantages between 24% and 34% of the present value of contributions, with Canada and the United States at the bottom of that range and the Netherlands and the United Kingdom at the top.[6]

[6] The calculations assumes that the average earner enters the labour market at age 20 in 2015 and contributes yearly until the country's official age of retirement at a rate equal to the minimum or mandatory contribution rate fixed by regulation in each country or 10% of wages in the case of

Figure 2. Generosity of financial incentives for an average earner in OECD and EU countries

Overall tax advantage, as a percentage of the present value of contributions



Note: Calculations based on the 2015 tax treatment of the main pension plan in each country.

17. The differences observed across countries are due not only to the characteristics of the tax regimes applied to retirement plans and savings vehicles and the presence of non-tax incentives, but also to the characteristics of the personal income tax system in each country (i.e. the tax brackets and the tax rates). In Canada and Greece for example, the overall tax advantage of contributing to a private pension plan is different (24% and 14% of the present value of contributions respectively), even though the same tax regime applies to retirement savings (contributions and returns are tax exempt and withdrawals are taxed, "EET"). However, an average earner in Canada has a 31.15% marginal tax rate, while an average earner in Greece has a 22% marginal tax rate. A lower marginal income tax rate implies that tax relief is provided at a lower rate.

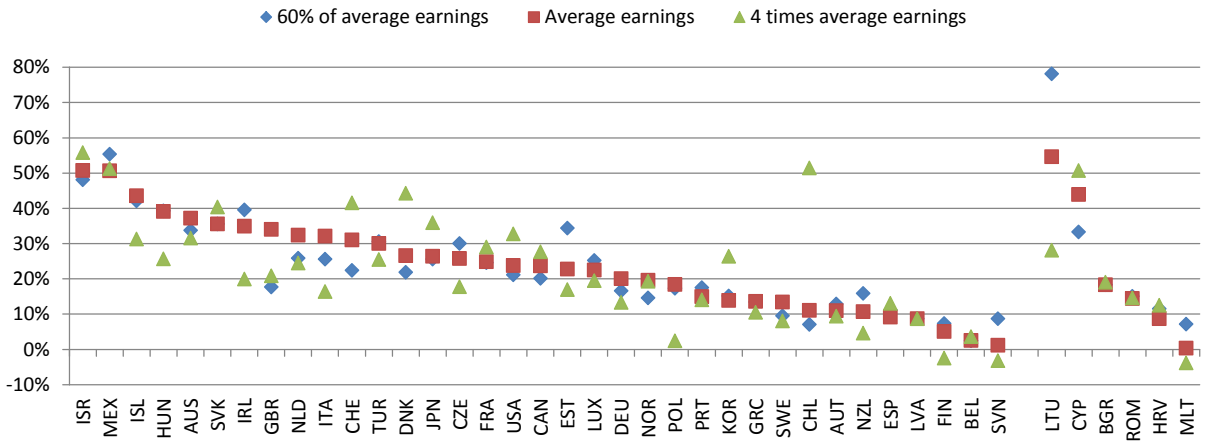
18. The generosity of financial incentives varies with the income level of the individual. Figure 3 shows the overall tax advantage for different income levels. In countries where the green triangles are above the other symbols, the overall tax advantage is higher for high-income earners (earning four times average earnings) than for average earners and low-income earners (earning 60% of average earnings). This is the case in Canada, Chile, Denmark, Japan, Korea, Switzerland, and the United States. Low-income earners receive higher financial incentives in the Czech Republic, Estonia, Ireland, Mexico, New Zealand, Slovenia and Lithuania for example, where blue diamonds are above the other symbols. These include countries offering fixed nominal subsidies (e.g. Lithuania, Mexico) or matching contributions with a low maximum entitlement (e.g. the Czech Republic, New Zealand). This type of incentive is indeed more valuable to low-income earners as the government payment represents a larger share of their income. Yet, other countries provide the largest financial incentives to average earners, like Australia, Hungary, Iceland, Italy, the Netherlands and the United Kingdom (red squares are above the other symbols). In the United Kingdom for example, the average earner pays relatively less tax on withdrawals comparatively to the tax relief enjoyed on

voluntary plans. The total amount of assets accumulated at retirement is converted into an annuity certain with fixed nominal payments. Inflation is set at 2% annually, productivity growth at 1.5%, the real rate of return on investment at 3% and the real discount rate at 3%.

contributions. Finally, countries with fixed personal income tax rates treating all retirement savings equally independently of the income level offer the same overall tax advantage across the income scale, as for instance in Bulgaria and Romania.

Figure 3. Generosity of financial incentives by income level

Overall tax advantage, as a percentage of the present value of contributions



Note: Calculations based on the 2015 tax treatment of the main pension plan in each country.

3. Are financial incentives effective tools to promote retirement savings?

19. The issue now is whether these tax advantages translate into higher retirement savings. Countries primarily use tax incentives to promote retirement savings, in particular by taxing retirement savings only upon withdrawal ("EET" tax regime). This translates into a tax advantage for individuals when contributing to an incentivised retirement plan rather than to a traditional savings vehicle, in the form of a reduction in total tax paid over their lifetime. This section then examines whether financial incentives are effective tools to promote retirement savings by analysing whether individuals actually respond to financial incentives by increasing their participation in and contributions to retirement savings plans.

20. The best way to measure the effectiveness of financial incentives is to analyse their effect with respect to the intended policy objective. Some countries may want to *increase overall savings* because they have low national savings relative to their investment needs. National savings are a source of funds for domestic investment, which is a key driver of labour productivity growth and higher future living standards. Even a country that has large overall savings may still want to *reallocate savings into retirement savings plans*. Increasing saving for retirement could increase long-term investment and bring higher long-term growth. Furthermore, behavioural economics teaches that people tend to save too little for retirement because of procrastination, inertia and short-sightedness. Encouraging a reallocation of savings would not increase overall national savings but would earmark a greater share for retirement. In addition, recent reforms to PAYG public pension systems have increased the need to *develop the complementary role of private pensions in the provision of retirement income* in some countries (OECD, 2017[3]). Providing financial incentives intends to increase participation in and contributions to retirement savings plans in order to complement public provision,

increase overall pensions and thus improve pension adequacy. They can also help preventing people from relying on the public safety net, which would otherwise increase budgetary expenditures.

21. The effectiveness of financial incentives also depends on the design and generosity of the public pension system. In countries where the public pension system already offers high replacement rates, the need for extra savings is low. However, one needs to bear in mind potential financial sustainability issues. In the same way, if contributions to the public pension system are already large, individuals may not be willing to part with additional pension contributions. In both cases, financial incentives would need to be larger to overcome any reservations about putting money aside for retirement.

22. In light of those broad objectives, the rest of this section summarises the main messages from the literature in this area. The next subsections then discusses the impact of financial incentives on participation in and contributions to retirement savings plans, as well as whether financial incentives lead to an increase in national savings or to a reallocation of savings.

The impact of tax incentives on participation in and contributions to retirement savings plans

23. "EET" tax incentives encourage participation in and contributions to retirement savings plans in progressive personal income tax systems, where tax rates increase with taxable income, because individuals respond to the upfront tax relief on contributions. Indeed, when contributions are deductible from taxable income, tax relief on contributions increases when taxable income jumps from one tax bracket to the next. Empirical studies in Canada (Milligan, 2002[4]), France (Carbonnier, Direr and Slimani Houti, 2014[5]), the United Kingdom (Crawford, Disney and Emmerson, 2012[6]) and the United States (Power and Rider, 2002[7]) show that individuals whose income is subject to a higher marginal tax rate are more likely to participate in and to contribute more to an "EET" retirement savings plan.[7] In all these studies, the authors include controls for the level of income, so that the tax effect is not distorted by the effect of income.

24. Among low-income earners however, the combination of a progressive tax system and an "EET" tax incentive may not encourage retirement savings. For example, Carbonnier, Direr and Slimani Houti (2014[5]) compare contribution levels to "EET" tax-favoured pension plans for two groups of French individuals, those whose taxable income is higher than but close to a given tax threshold, and those whose taxable income is just below the same threshold. They conduct this comparison at different tax thresholds and for different age groups.[8] They find that low-income earners aged 45 to 55 do not increase their contribution level when their marginal tax rate increases. This suggests that the structure of the income tax system is not the main factor for low-income earners to decide about their contribution level. In addition, in retirement income systems where low-

[7] Feng (2014[44]) conducts the same kind of analysis in Australia for voluntary pension arrangements (salary sacrifice) which are taxed favourably ("ttE" tax regime, with a fixed tax rate of 15% on contributions rather than the marginal tax rate), but fails to find a significant increase in participation for individuals whose income is subject to a higher marginal tax rate.

[8] The French personal income tax system has four tax thresholds. The authors test the impact of the three largest thresholds on contribution levels.

income earners receive large income replacement rates through public pensions, the little responsiveness to tax incentives may be less of a concern.

25. Despite this, low-income earners do respond to changes in tax incentives by adjusting their participation in and contribution level to retirement savings plans, although the impact may be small. For instance, Disney, Emmerson and Wakefield (2007[8]) show that low-income earners increased their participation in and contributions to personal pensions in the United Kingdom following a 2001 reform that increased the contribution limit for them. Private pension coverage increased by around three percentage points more among individuals who were affected by the reform than among those who were not affected. Evidence also suggests an increase in contributions among those affected by the reform of around GBP 0.8 per week for singles and GBP 4.3 per week for couples. Similarly, Harju (2013[9]) shows that an increase in tax incentive for low-income earners in 2005 in Finland slightly increased their participation in personal pension plans.[9] Among low-income earners, coverage increased between one and two percentage points because of the reform. The reform did not prompt a significant increase in contribution levels however.

26. The little responsiveness of low-income earners to tax incentives may be due to insufficient income to afford contributions, insufficient tax liability to enjoy tax relief, and low understanding of tax-related issues. For example, in the United Kingdom in 2012, only 46% of survey respondents knew that money paid into private pensions qualifies for tax relief (Macleod et al., 2012[10]). In addition, Sandler (2002[11]) provides evidence that understanding of tax-related matters with respect to savings increases with the income level.

27. Tax incentives can also take the form of tax credits. The only available studies on tax credits refer to the Saver's Credit in the United States, which supplements "EET" tax incentives for low and middle-income earners.[10] According to the Internal Revenue Service, in 2015, only 5.4% of all tax filers received a tax credit for an average amount of USD 178, far below the maximum USD 1 000. This low participation number is partially explained by the fact that the statistics consider all tax filers while only low and middle-income earners are eligible for the credit. Brown and John (2017[12]) argue that the limited impact of the programme is due to a general lack of awareness of the credit and the complexity of the form to fill in, the fact that many low and middle-income earners to do not have access to occupational pension plans, and the fact that low-income earners may not have sufficient tax liability to receive the tax credit. In addition, Ramnath (2013[13]) finds no statistically significant evidence that receiving a higher credit rate increases individual contributions to private pensions.

Do tax incentives lead to an increase in national savings or to a reallocation of savings?

28. The literature is far from conclusive on whether tax incentives lead to an increase in national savings or to a reallocation of savings. Empirical studies lead to a range of

[9] The tax treatment of contributions to personal pension plans changed from being deductible from labour income (for which tax rates increase with income) to being deductible from capital income (for which a fixed tax rate applies).

[10] The Saver's Credit provides taxpayers who fall within certain income tax brackets with non-refundable tax credits equal to 50%, 20% or 10% of the amount contributed to private pension plans on up to USD 2 000.

estimates of between 9% and 100% for how much new savings represent in total retirement savings in tax-favoured plans. All studies examining this issue focus on retirement savings plans for which contributions are tax deductible (either "EET" as in the United States or "EtT" as in Denmark).[11]

29. A first group of studies find that tax incentives increase retirement savings through an increase, at least moderate, in national savings. Poterba, Venti and Wise (1996[14]), found that thanks to tax incentives, the assets accumulated in IRAs and 401(k) plans in the United States are mostly net additions to savings. Papers with similar findings include: Hubbard and Skinner (1996[15]), Benjamin (2003[16]), Ayuso, Jimeno and Villanueva (2007[17]), Guariglia and Markose (2000[18]), Rossi (2009[19]), and Gelber (2011[20]).

30. Another body of the literature argues that the increase in retirement savings following the introduction of tax incentives is mostly the result of savings reallocation rather than new savings. For example, Engen, Gale and Scholz (1996[21]) consider that most of the reported increase in financial assets in IRAs can be attributed to stock market booms, higher real interest rates, and shifts in non-financial assets, debt, pensions and Social Security wealth. They conclude that tax incentives have a strong effect on the allocation of savings and wealth, but not on the level. Other papers with similar findings include: Attanasio and DeLeire (2002[22]), Pence (2002[23]), Attanasio, Banks and Wakefield (2004[24]), Antón, Muñoz De Bustillo and Fernández-Macías (2014[25]), Chetty et al. (2014[26]) and Paiella and Tiseno (2014[27]).

31. There are a number of constraints and methodological issues that explain why the empirical measurement of whether tax incentives for retirement savings lead to an increase in national savings is inconclusive. For example, it is complex to build the counterfactual, to control for all other factors that can influence saving decisions, or to choose the appropriate dependent variable (savings, wealth or consumption).

32. There is however more consistent evidence in the literature that low-to-middle income earners are more likely to respond to tax incentives by increasing their overall savings, while high-income individuals tend to reallocate their savings. For example, Engelhardt (2000[28]), Engen and Gale (2000[29]), Chernozhukov and Hansen (2004[30]) and Engelhardt and Kumar (2011[31]) argue that, as low-income earners have little wealth, when they decide to contribute to a tax-favoured retirement savings plan, their contributions essentially represent new savings, as they have few other assets to reallocate. By contrast, high-income earners are more likely to finance contributions to tax-favoured accounts by shifting assets from other taxable accounts, rather than reducing their consumption, although they need to balance the advantage of tax incentives with the illiquidity of retirement products.

33. Therefore, the proportion of new savings in tax-favoured retirement plans will depend on the propensity to save of different income groups and whether tax incentives lean towards high or middle-to-low income earners.

The impact of non-tax incentives on participation, contributions and savings

34. Adding employer matching contributions to tax-favoured ("EET") occupational pension plans increase participation in retirement savings plans, but not necessarily total

[11] In Denmark, returns are taxed at a fixed rate of 15%. This represents a lower tax rate than the marginal tax rate for most people, hence the "t" in small letter in "EtT".

contributions (employer plus employee). Choi (2015[32]) and Madrian (2013[33]) review the rich literature in the United States related to employer matching contributions and conclude that the presence of a matching contribution increases participation and that the higher the match rate, the higher the impact on participation.[12] However, both authors show that empirical evidence on the link between the match rate and the level of contributions is inconclusive. The match threshold may have an impact though, as Choi et al. (2002[34]) show that increasing the match threshold (i.e. the rate of employee contribution up to which the employer offers the match), without changing the match rate, increases the proportion of employees contributing at higher rates.

35. Government matching contributions targeted at low-income earners may be more effective at increasing their contribution level than their participation rate. OECD (2012[35]) for example shows that, in Australia, despite the "super co-contribution" programme, low-income earners are less likely to make voluntary pension contributions than other income groups. However, when low-income earners do contribute voluntarily, their contribution rate tends to be much higher than that of other income groups, as they need to make a larger contribution effort to get the maximum entitlement.

36. Finally, government fixed nominal subsidies increase participation in retirement savings plans for low-income earners, but the impact on contribution levels and national savings is unclear. For example, Börsch-Supan, Coppola and Reil-Held (2012[36]) and OECD (2012[35]) show that Riester pensions in Germany, which offer fixed nominal subsidies provided that individuals contribute at least 4% of income, achieve higher coverage rates among low-income households than other types of private pension plan.[13] Pfarr and Schneider (2013[37]) also find a positive effect of the child subsidy on participation.[14] However, the design of the subsidies does not encourage individuals to contribute above the 4% threshold. OECD (2012[35]) shows that average contribution rates are similar across all income groups, around the 4% minimum required by legislation to obtain the full subsidy. This threshold may act as an anchor in people's mind and do not provide any incentive to go beyond. Finally, the evidence regarding the impact of subsidies on national savings is mixed. Corneo, Keese and Schröder (2008[38]), Kolerus, Koske and Hüfner (2012[39]), and Pfarr and Schneider (2013[37]) argue that low-income households reallocate existing savings from taxable accounts to Riester plans, while Börsch-Supan, Coppola and Reil-Held (2012[36]) report that most households of all income groups declare that they increased their savings after being enrolled in a Riester plan.

4. What is the cost of providing financial incentives to promote retirement savings?

37. Tax incentives translate into lower personal income taxes paid by individuals and thus create a fiscal cost for the government. Moreover, non-tax incentives come directly from the general budget. The total fiscal cost of those tax and non-tax incentives depends

[12] Evidence in Australia also shows that the levels of the match rate and of the maximum entitlement influence participation. In July 2012, the government reduced by half the match rate to 50% and the maximum entitlement to AUD 500 for its "super co-contribution" programme, leading to a decline of 40% in the number of individuals claiming the benefit.

[13] The basic subsidy amounts to EUR 175 and is reduced proportionately for contribution levels below 4%.

[14] The child subsidy amounts to EUR 300 for children born since 2008.

on the generosity of the incentives and the amount contributed into retirement savings plans in each year. The section first presents how countries report the cost related to financial incentives for retirement savings, it then introduces a measure that allows for cross-country comparisons, and finally calculates that measure for a selection of countries.

Country reporting of the cost related to financial incentives to promote retirement savings

38. Several OECD countries produce tax expenditure reports that provide an assessment of the cost of granting financial incentives to promote retirement savings. These national reports usually measure the amount by which tax revenues are reduced in a given year due to a favourable tax treatment compared to a benchmark, under the assumption of unchanged behaviour from the taxpayer. Among countries offering non-tax incentives, some may also use these reports to inform about the amount paid in retirement accounts through fixed nominal subsidies or matching contributions (e.g. Austria, Germany, New Zealand).

39. Some countries also report the amount of tax expenditure that goes to different income groups as a share of the total tax expenditure related to the tax treatment of retirement savings. In Canada, Ireland, and the United States, where retirement savings are taxed only upon withdrawal ("EET" tax regime), the tax expenditure is mostly concentrated on high-income households. Individuals whose income put them in the top 20-25% of the population receive around 80% of the tax expenditure related to retirement savings in Canada, 71% in Ireland and 66% in the United States. This distribution reflects the fact that high-income earners participate more in tax-favoured retirement savings plans and pay the largest share of total taxes, as they earn more income and face the highest marginal tax rates.

40. There is a need for a common measure across countries as, unfortunately, national tax expenditure reports do not allow for cross-country comparisons when it comes to tax incentives for retirement savings. Indeed, the items reported as tax expenditures related to retirement savings vary by country. For example, some countries like Ireland, France, Sweden or Belgium only communicate tax revenues forgone in their tax expenditure reports. Other countries, like Canada, the United Kingdom and the United States also include the tax collected on pension withdrawals and report it as negative tax expenditure.

How to compare the evolution of the fiscal cost going forward across countries?

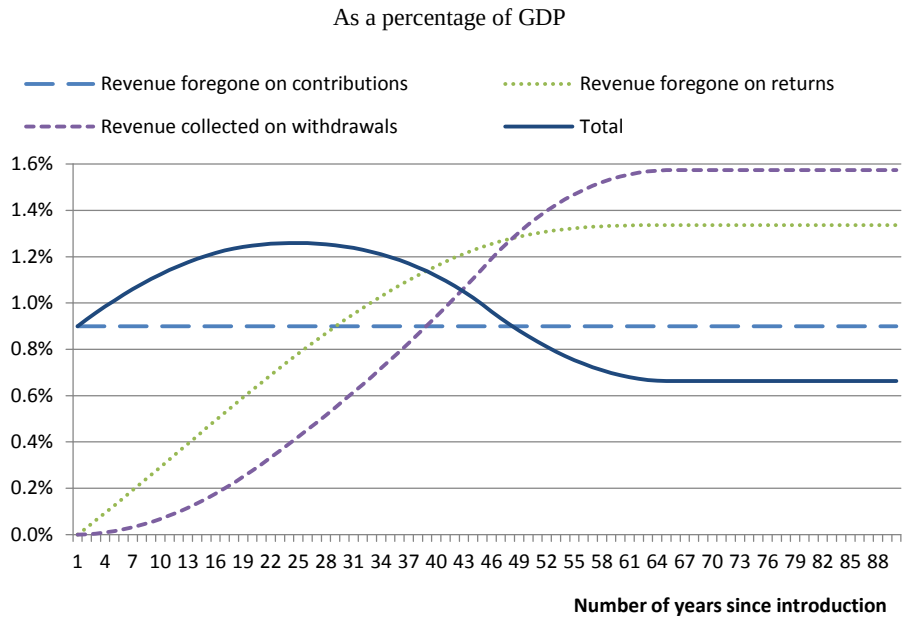
41. The "net tax expenditure" allows comparing the fiscal cost related to financial incentives for retirement savings and its evolution over time. This measure sums up how much personal income tax is collected or forgone each year on contributions, returns on investment and withdrawals over the total population, as compared to a benchmark in which contributions and returns are taxed and withdrawals are tax exempt ("TTE").[15] As

[15] When the "EET" tax regime applies to retirement savings, the net tax expenditure can be expressed as $NTE_t = \mu_C C_t + \mu_A(1-\mu_C)iA_{t-1} - \mu_B B_t$ where C_t and B_t are contributions to and benefits paid out of retirement savings plans in year t, A_{t-1} is the aggregate level of assets in the plans at the end of the previous year, i is the nominal pre-tax rate of return on plan assets in the year, and μ_C, μ_A and μ_B are the average marginal personal income tax rates applicable to contributions, returns on investment and benefits respectively. See DAF/AS/PEN/WD(2016)14/REV1 for more details.

illustrated below, the maturity of the pension system and demographic trends influence the net tax expenditure.

42. The net tax expenditure stabilises only when the pension system is fully mature. For example, as illustrated in Figure 4, introducing "EET" tax incentives in a pension system creates a positive fiscal cost for the government, which is larger during the maturing phase of the system. The "EET" tax system, as compared to a "TTE" benchmark, produces a net tax expenditure stemming from the tax deferral and the tax exemption of returns on investment. During the maturing phase, aggregated assets and benefit levels increase over time until they reach a stable level. The lag in the growth of benefits behind that of assets and investment income creates a temporary increase in the net tax expenditure. Once the system has reached maturity, i.e. all retirees draw their pension based on a full career and constant contribution rules, the net tax expenditure stabilises at its steady-state level.

Figure 4. Net tax expenditure for a maturing "EET" pension system, by components

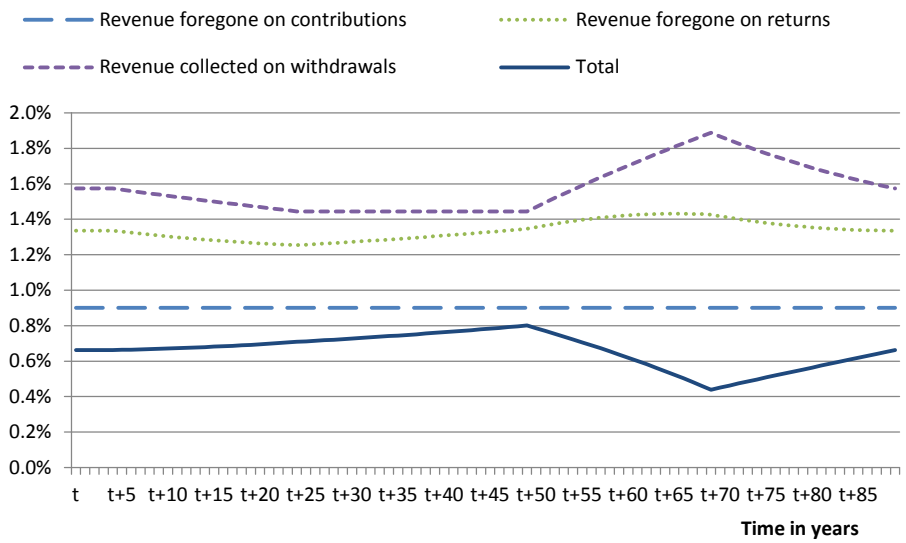


Note: The calculations assume that individuals save from the age of 20 to 64 and draw pension benefits from age 65 to 84; contributions represent 3% of GDP; the number of people in each single-year age cohort is equal; the same average tax rate (30%) applies to all sources of income; a nominal rate of return of 5.06% (3% real return plus 2% inflation); and GDP growth at 3.28% (1.25% real growth plus 2% inflation).

43. Demographic trends also impact the net tax expenditure. Figure 5 takes a mature "EET" system in year t and illustrates how the net tax expenditure varies when the size of the cohorts entering the labour market between t+5 and t+24 is 20% larger. In t, the net tax expenditure is at its steady-state level. Larger cohorts entering the labour market translate into higher contributions and higher assets, bringing the net tax expenditure above the steady state for a while. When the larger cohorts retire, the net tax expenditure declines and reaches a minimum (below the steady state) the year in which all of the retired population is composed of individuals in the larger cohorts. The steady state is reached back when all the individuals in the larger cohorts have passed away.

Figure 5. Net tax expenditure for an "EET" pension system subject to a population bulge, by components

As a percentage of GDP



Note: The calculations assume that individuals save from the age of 20 to 64 and draw pension benefits from age 65 to 84; contributions represent 3% of GDP; cohorts entering the labour market between t+5 and t+24 are 20% bigger than the other cohorts; the same average tax rate (30%) applies to all sources of income; a nominal rate of return of 5.06% (3% real return plus 2% inflation); and GDP growth at 3.28% (1.25% real growth plus 2% inflation).

Fiscal cost of financial incentives in selected OECD countries

44. The total fiscal cost of financial incentives to promote retirement savings varies greatly across countries, but remains in the low single digits of GDP. Figure 6 shows the total fiscal cost of financial incentives, including both the net tax expenditure of tax incentives and the direct cost of non-tax incentives when they exist, for selected countries between 2015 and 2060.[16]

45. The fiscal cost varies from 2%-3% of GDP in Australia and Iceland to 0.1%-0.3% of GDP in Chile, Mexico, New Zealand and the Slovak Republic, and it even turns negative in Denmark.

46. Countries with mandatory private pension systems may expect a larger fiscal cost. For example, in Australia and Iceland, the private pension systems cover a large part of the population due to their mandatory nature, the contribution rates are above 10% and the tax incentives are among the most generous (the overall tax advantage for an average earner is above 35% of the contributions paid over a full career, see Figure 2). In both countries, the fiscal cost is expected to vary between 2% and 3% of GDP over 2015-2060. Recent increases in contribution rates in these countries explain the upward trend in the fiscal cost.

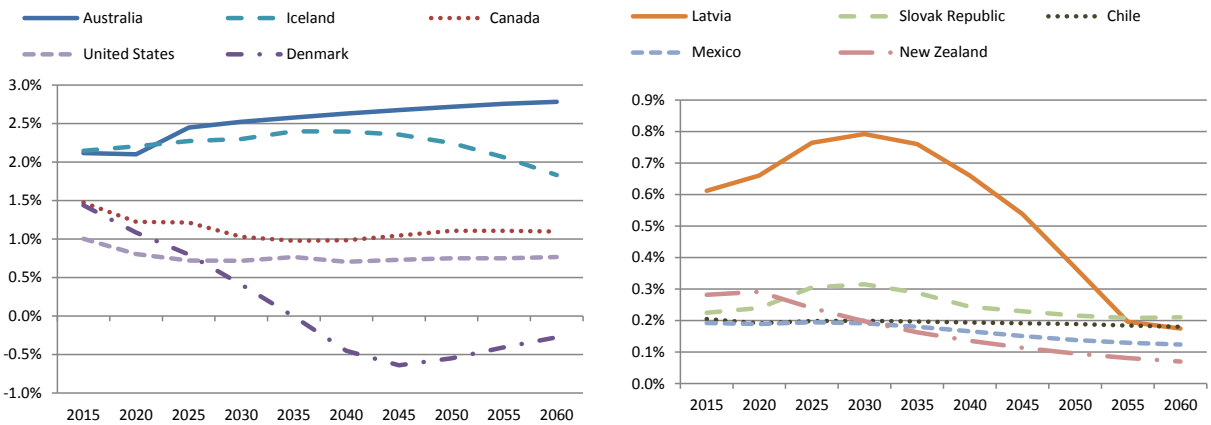
[16] As the amount of information necessary to make those projections is substantial, the analysis only covers 10 OECD countries for which appropriate data could be obtained.

47. Countries with mature voluntary private pension systems can expect a relatively stable fiscal cost. For example, the fiscal cost will fluctuate between 0.8% and 1.5% of GDP in Canada and the United States, which have relatively mature voluntary pension systems and moderately generous tax incentives (an overall tax advantage of 24%). The ageing of baby-boom cohorts is the main factor driving the decline in the net tax expenditure between 2015 and 2030-35 in these two countries. As baby-boomers start retiring and withdrawing their benefits, tax revenues collected on pensions will increase, thus reducing the net tax expenditure. In both countries, the maturity of the private pension system is such that tax revenues collected on withdrawals is projected to exceed tax revenues forgone on contributions for the whole analysed period 2015-2060.

48. The maturing of the pension system will translate into large falls in the fiscal cost in Denmark and Latvia. In Denmark, the fiscal cost related to quasi-mandatory occupational pension plans will turn negative due to a large increase in tax revenues collected on withdrawals between 2015 and 2045. This is because coverage has increased greatly in the 1990s through collective agreements, and contribution levels gradually went up to around 15% in the mid-2000s. This translates into increased withdrawals over time. The mandatory pension system in Latvia has been introduced in 2001. During its maturing phase, the net tax expenditure will reach a peak at 0.8% of GDP, before declining to 0.2% of GDP.

Figure 6. Projected fiscal cost related to financial incentives to promote retirement savings in selected OECD countries, 2015-2060

As a percentage of GDP



49. Taking into account corporate income tax revenues and the potential effects of new savings would reduce the cost of financial incentives. When savings are invested in domestic equities, they help companies improve their productive capacity, thereby raising the overall level of profits which are subject to corporate income tax, and thus increasing corporate income tax revenues. In addition, should financial incentives to promote retirement savings lead to new savings, this would impact tax revenues too. Indeed, new savings are financed by a reduction in consumption and imply higher investment than otherwise, as new savings represent money that the individual would not have saved in the absence of the incentivised retirement plan. Therefore, new savings affect consumption tax revenues as well as personal and corporate income tax revenues through higher investment income. As long as retirement savings are partly invested in domestic equities and/or some of the savings would not have been done in the absence of financial

incentives, the fiscal cost of those incentives would be reduced as compared to that shown in Figure 6. The exact reduction is however difficult to estimate as it depends on assumptions on how several parameters may evolve over time (see DAF/AS/PEN/WD(2017)7).

5. What are the comparative advantages and disadvantages of different approaches to design financial incentives?

50. It is complex to disentangle the effect of the design of different financial incentives from the effect of country-specific parameters when analysing the implications of financial incentives for individuals and governments. Indeed, countries offering the same financial incentive can use different parameters to define that incentive (e.g. tax-deductibility limit, tax credit rate, proportion of contributions being tax deductible, value of the subsidy, match rate). In addition, the characteristics of the personal income tax system in each country (i.e. the tax brackets and the tax rates) also influence comparisons across countries. Therefore, this section provides a theoretical assessment of different approaches to design financial incentives to promote retirement savings. The analysis below compares different approaches to design financial incentives based on their inherent characteristics and within a common framework to assess the different implications for individuals and governments. The section starts with a description of the principal characteristics of the main current approach to design financial incentives, taxing retirement savings upon withdrawal ("EET"), and then compares this approach to alternatives, such as taxing retirement savings upfront ("TEE") or using tax credits.

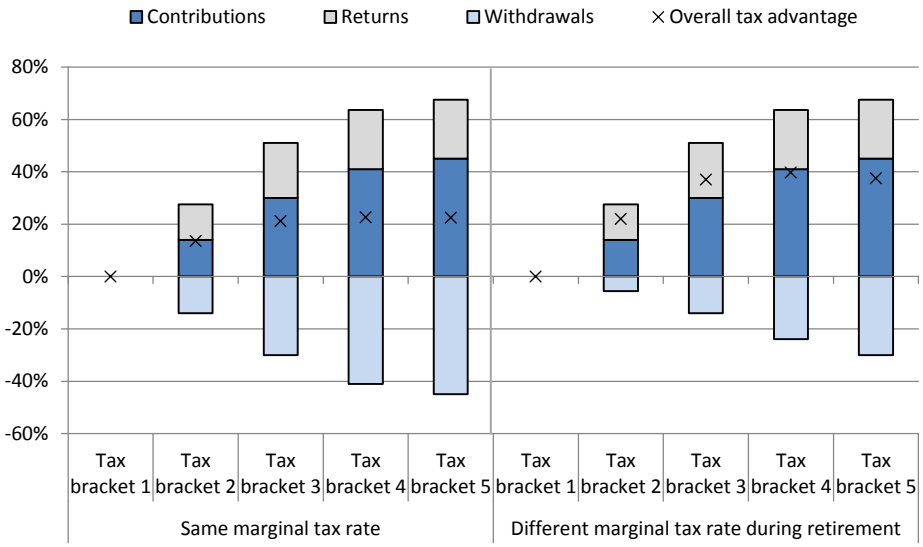
Principal characteristic of the main current approach to design financial incentives

51. The overall tax advantage provided by the "EET" tax regime, as compared to a "TTE" benchmark, comes from the exemption from taxation of returns on investment. When tax rates are the same at the time of contribution and withdrawal, the initial tax relief on contributions is exactly compensated by the tax paid on withdrawals, independently of the income of the individual saver. In that case, the after-tax rate of return is equal to the before-tax rate of return and the tax regime provides neutrality between saving and consuming to all individuals (see Box 1). The overall tax advantage provided by the "EET" tax regime is reduced when the discount rate is lower than the rate of return. This is because a lower discount gives a higher weight to future flows, so that taxes paid on withdrawals more than compensate for the initial tax relief on contributions.

52. The link between the overall tax advantage provided by an "EET" tax regime and the income level of the individual depends on the structure of the personal income tax system. In countries where all individuals have their entire income taxed at the same rate, the overall tax advantage provided by the "EET" tax regime (and any other tax regime) is the same across the income scale. This is the case for example in Bulgaria and Romania. When personal income tax rates increase with taxable income, the overall tax advantage increases with income through higher marginal tax rates. Indeed, individuals with higher marginal tax rates benefit more on every unit of investment income to which a zero rate of tax applies. However, the amount of investment income that would have been generated by an after-tax contribution in a benchmark "TTE" savings account is lower for individuals with higher marginal tax rates. The result is that the overall tax advantage increases with marginal tax rates, but the rate of increase slows as the marginal tax rate increases. This is illustrated in the left panel of Figure 7.

Figure 7. Overall tax advantage for an "EET" tax regime, by income level and components

Taxes saved over a lifetime, as a percentage of the present value of contributions



Note: The calculations assumes an individual contributing 5% of wages from age 20 to 64 and withdrawing benefits from age 65 to 84 as a fixed-payment annuity. Personal income falls into five tax brackets with tax rates of 0%, 14%, 30%, 41% and 45% respectively. On the left panel, each individual remains in the same tax bracket over working and retirement years. On the right panel, the tax rate during retirement is defined according to the level of taxable pension income (including public pensions).

53. The relative level of retirement income compared to income from work also affects the link between the overall tax advantage provided by the "EET" tax regime and the level of income. Retirement income is usually lower than income from work, hence retirement income is likely to be taxed at a lower average rate than income from work. In that case, the tax paid on withdrawals may not compensate fully for the initial tax relief on contributions and the overall tax advantage is larger. This also means that the tax regime may favour saving over consuming (the after-tax rate of return is greater than the before-tax rate of return, see Box 1).[17] In addition, depending on the distance between the tax rates in the different tax brackets, and the size of the tax brackets, the reduction in taxes paid on withdrawals may increase the variation in the overall tax advantage across income groups. This is illustrated in the right panel of Figure 7.

54. Finally, "EET" tax incentives generate a long-term fiscal cost to the government, but once the pension system is mature, taxes collected on withdrawals are large. As shown in Figure 4, once the system has reached maturity, i.e. all retirees draw their pension based on a full career and constant contribution rules, the net tax expenditure stabilises at its steady-state level. That level is positive, which implies a long-term fiscal cost for the government. However, the size of withdrawals in a given year exceeds the size of contributions, as withdrawals are the result of several years of contributions accumulating with compound interests. Taxes collected on withdrawals each year

[17] OECD (2018[42]) shows that, when the taxpayer is assumed to earn less in retirement than when making contributions, the marginal effective tax rate (METR) on private pensions is negative in 22, 27 and 22 OECD countries for low-rate, average-rate and high-rate taxpayers, respectively. A negative METR reflects an incentive to save rather than to consume.

therefore more than compensate for tax revenues foregone on contributions. For countries already using the "EET" tax regime, and as societies continue to age, the higher tax revenues from this tax regime will come at a time when pressure on public services may increase.

Taxing retirement savings upfront or upon withdrawal

55. Taxing retirement savings upfront (i.e. taxing only contributions, "TEE") is often seen as an equivalent approach to taxing retirement savings upon withdrawal ("EET"). In particular, upfront taxation also achieves tax neutrality between saving and consuming, as long as returns are not above the normal return to saving (Box 1). However, there are a number of different implications for the individual and the government worth analysing.

56. Upfront taxation and taxation upon withdrawal provide the same overall tax advantage only when the income of the individual is subject to the same marginal tax rate throughout working and retirement years. This is obviously the case in countries where all income is taxed at a single rate. However, in countries where tax rates increase with taxable income, not all individuals will be subjected to the same tax rate over their entire life. In that case, the optimal tax treatment in terms of tax savings varies depending on individuals' circumstances.

57. Whether taxing retirement savings upfront or upon withdrawal is better for individuals depends on their anticipation of whether their income tax rate will be higher or lower on average during working or retirement years. Individuals would be better-off paying taxes upfront (respectively upon withdrawal) when they expect tax rates during retirement to be greater (respectively lower) than they are when contributions are made. As discussed earlier, individuals usually face a lower tax rate during retirement than while working. When this is the case, taxation upon withdrawal will provide a larger overall tax advantage than upfront taxation. On the contrary, if the individual faces a larger tax rate during retirement than while working, upfront taxation is more favourable. For example, when both public and private pension incomes are taxable, the individual may be subjected to a higher tax rate during retirement than the one at which tax relief was granted on contributions.[18]

58. Low levels of financial knowledge may however affect individual's retirement plan choices between upfront taxation and taxation upon withdrawal. For example, Beshears et al. (2017[40]) show that employees in the United States do not reduce their contribution rate to their occupational pension plan when an upfront taxation option (Roth 401(k)) is added to their traditional plan with taxation upon withdrawal (traditional 401(k)).[19] The authors find that the insensitivity of contributions is partially driven by ignorance and/or neglect of the different tax rules.

59. In addition, behavioural biases may lead to a different perception of the two tax treatments. Contributions to plans with taxation upon withdrawal immediately reduce the participant's income tax due. Plans with upfront taxation do not provide tax relief today.

[18] Another example is when means-tested public pension benefits treat "EET" and "TEE" withdrawals differently, including the former for the means-test but not the latter.

[19] With upfront taxation, lower after-tax contributions are needed to achieve the same after-tax benefit in retirement as with taxation upon withdrawal (assuming that tax rates remain the same over the lifetime).

Because of present bias, individuals may want to secure the tax advantage earlier rather than later and therefore prefer taxation upon withdrawal.

60. Other behavioural factors could lead individuals to prefer upfront taxation. For example, Cuccia, Doxey and Stinson (2017[41]) show that uncertainty may lead to anxiety and influence plan choice. Plans with taxation upon withdrawal may be perceived as more uncertain than plans with upfront taxation because the amount of taxes that will be due on withdrawals is unknown, as tax rates may change, as well as the individual's economic status. Low levels of financial literacy and behavioural biases may therefore lead some individuals to fail to choose the plan with the tax treatment that would provide them with the largest overall tax advantage.

61. Although upfront taxation may be appealing to the treasury because it does not defer tax collection, in the long run, this tax regime may translate into a higher fiscal cost than taxation upon withdrawal. If we compare yearly cash flows for the treasury for two pension systems with one of the two tax regimes each, in the short term, when the systems are introduced, upfront taxation leads to a lower fiscal cost than taxation upon withdrawal. This is because, when taxing only withdrawals, tax collection is deferred, while the cost related to tax revenues foregone on contributions is fully incurred as of the introduction of the system. With upfront taxation, the net tax expenditure is just equal to tax revenues foregone on returns. In the long term, once the two systems reach maturity, it is the other way around: taxation upon withdrawal leads to a lower fiscal cost than upfront taxation. This stems from the fact that, with taxation of withdrawals, the taxes collected more than compensate for tax revenues foregone on contributions, as the size of withdrawals in a given year exceeds the size of contributions in a mature pension system.[20]

62. Upfront taxation may be preferable when considering mobility across countries. If individuals contribute to a plan with taxation upon withdrawal and move to another country later in their working life or after retirement, then the original country faces a tax revenue loss if those people who moved to another country pay income tax in their new country of residence. With upfront taxation, mobility across countries does not impact tax revenues across countries. Retirement savings are taxed in the country where contributions are made and whether the individual later moves does not impact tax revenues.

Reducing the fiscal cost

63. Some countries deviate from the standard "EET" model to reduce the fiscal cost by lowering the overall tax advantage for individuals. This can be achieved by taxing returns at favourable rates compared to alternative savings vehicles (e.g. Denmark and Sweden), or by providing only a partial tax relief on contributions, while still taxing withdrawals.

64. Partial tax relief on contributions is widespread and can take different forms. Most countries have ceilings on tax-deductible contributions, thereby limiting the amount of contributions attracting tax relief.[21] Some countries use partial tax deduction, where

[20] If the government invests the taxes collected on contributions with the upfront taxation regime instead of spending them, it could obtain the same gains when the system reaches maturity as with the tax regime that taxes retirement savings upon withdrawal.

[21] Not indexing ceilings during several years or indexing them only in line with inflation is also a way to further reduce tax relief on contributions over time.

only a portion of the contributions is tax deductible (e.g. Austria where 25% of an individual's contributions are tax deductible). Finally, in some countries, contributions are taxed at the same fixed rate for everyone, and that rate is usually lower than the marginal income tax rate, therefore providing a rate relief on contributions (e.g. Australia where contributions are taxed at 15% for most people).

65. There are other approaches, not implemented in any country yet, that may be worth considering. For example, contributions could be tax deductible at the same fixed rate for everyone, independently of the individual's marginal income tax rate. Similarly, there could be a cap for the deduction rate. Contributions would be tax deductible at the individual's marginal income tax rate, as long as that marginal rate is below the capped rate. For individuals with a marginal tax rate above the capped rate, contributions would be deductible only up to the capped rate.

66. While approaches reducing the fiscal cost as compared to the "EET" tax regime can still promote contributions to retirement savings plans rather than to alternative savings vehicles, they may have a negative impact on the incentive to save in the first place. Taxing returns on investment or providing partial tax relief on contributions can still lead to a positive overall tax advantage. For example, Figure 2 shows that Denmark and Sweden, which tax returns on investment at a preferential rate ("EtT" tax regime), provide an overall tax advantage to the average earner (representing 27% and 13% of the present value of contributions respectively). However, OECD (2018[42]) reports that average-rate taxpayers face a positive marginal effective tax rate on private pensions in these two countries (21.1% and 2.9% respectively), meaning that they would be better-off consuming than saving in these plans (because consumption tomorrow is taxed more heavily than consumption today).

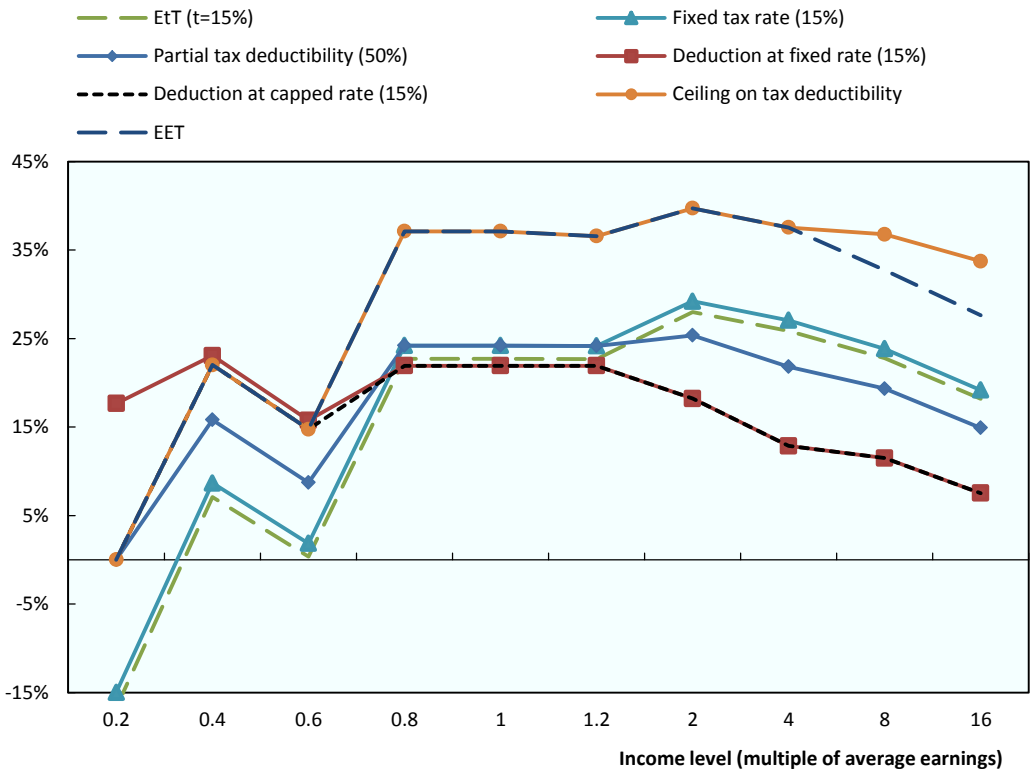
67. Care is needed when reducing the fiscal cost as different approaches imply different distributional impacts on the overall tax advantage when tax rates increase with taxable income. Figure 8 illustrates the distributional impact of the different approaches to reduce the fiscal cost.

- Moving from exempting to taxing returns on investment at a fixed rate reduces the overall tax advantage for all income groups but penalises particularly low-income earners when the fixed tax rate exceeds their marginal tax rate, as they would pay tax on returns at a higher rate in the retirement plan than in the benchmark savings vehicle.
- Taxing contributions at a fixed rate penalises low-income earners when the fixed tax rate is larger than their marginal income tax rate.
- Reducing tax relief on contributions through partial tax deductibility hits middle-to-high income earners harder than low-income earners because low-income earners are the ones who benefit the least from the exemption of contributions in the first place.
- Capping the deduction rate only hits individuals with a marginal tax rate above the capped deduction rate.
- Tax deductions at fixed rate allow smoothing out the overall tax advantage across income groups. This approach reduces the overall tax advantage for individuals subject to a marginal tax rate greater than the fixed deduction rate, while it increases the overall tax advantage for individuals subject to a marginal tax rate lower than the fixed deduction rate.
- Introducing a ceiling on tax-deductible contributions modifies the amount contributed into the plan, as individuals have no incentive to contribute above the

ceiling. High-income earners are more likely to reach the ceiling and therefore they are more likely to reduce their contributions once a ceiling is introduced. This would lead high-income earners to accumulate fewer assets, have lower pension benefits, and therefore pay less tax. Lower pension benefits translate into a higher overall tax advantage for high-income earners once a ceiling is introduced because the proportion of their total pension income in the last tax bracket will be lower compared to a situation without the ceiling (c.f. individuals earning 8 or 16 times the average earnings in Figure 8). Not indexing tax-deductibility ceilings, or only with inflation, increases the proportion of individuals reaching the ceiling over time and reduces their contributions to retirement plans.[22]

Figure 8. Distributional impact of different approaches to reduce the fiscal cost

Taxes saved over a lifetime, as a percentage of the present value of contributions



Note: "E" stands for "exempt" and "T" for "taxed". The calculations assume an individual contributing 5% of wages from age 20 to 64 and withdrawing benefits from age 65 to 84 as a fixed-payment annuity.

Using tax credits or tax deductions

68. Non-refundable tax credits and tax deductions are economically equivalent when the credit rate is equal to the deduction rate. For example, for an individual facing a 30% marginal tax rate, it is equivalent to deduct contributions from taxable income or to get a

[22] As wages increase in line with inflation and productivity, more people will reach the ceiling when this is constant or just indexed to inflation.

tax credit of 30%. In both cases, taxes saved on the contributions are equal to 30% of the contributions.[23]

69. Tax credits allow smoothing out the overall tax advantage across income groups. They provide the same tax relief on contributions to all individuals with sufficient tax liability, independently of their income level and marginal income tax rate. They are equivalent to tax deductions at fixed rate.

70. Tax credits and tax deductions are however not very valuable for individuals with low or no income tax liability, except for refundable tax credits. Indeed, individuals whose tax liability is lower than the value of a non-refundable tax credit do not receive the full credit. For individuals not paying income tax, deducting contributions paid into a pension plan does not reduce the income tax due. Making tax credits refundable (i.e. when the tax credit is higher than income tax due, the treasury pays the difference to the individual) restores the attractiveness of tax credits for low-income earners as long as claiming the credit is not too cumbersome. Additionally, tax credits may also be expressed as a fixed nominal amount and be used to target the tax advantage at low-income earners, as the nominal amount represents a higher share of their income.[24]

71. The structure of tax declaration and tax collection may influence individuals' perception of the two approaches and lead to different levels of savings. For example, when pension contributions are deducted from pay before calculating and paying personal income tax, the tax relief is automatically provided and saved in the pension account. This may not be the case when tax deductions and tax credits need to be claimed through the income tax declaration. If income is taxed at source, contributions are first taxed at the individual's marginal rate and the tax refund is provided later in the year or even the following year to the individual. If the individuals anticipate that they will eventually get a tax refund, they can increase their after-tax contribution to save the whole tax relief in the pension account. However, if they do not anticipate it, the after-tax contribution may not be as high as with an automatic direct tax deduction.[25]

Using tax incentives or non-tax incentives

72. Non-tax incentives, such as matching contributions and fixed nominal subsidies, are not linked to the individual's tax status, making them attractive for all individuals. Non-tax incentives are calculated in the same way as refundable tax credits. Matching contributions are calculated as a proportion of contributions and provide an incentive on contributions that is income neutral, just as when the tax credit is expressed as a percentage of contributions.[26] With fixed nominal subsidies, the incentive is larger for

[23] With tax credits, contributions are included in taxable income. This implies that tax is paid on them and only after-tax contributions are invested in the pension account. The tax credit then reduces the income tax liability but may not be saved in the pension account.

[24] This approach is common for mortgages but it is not implemented in any country yet for retirement savings.

[25] Approaches that lead to lower after-tax contributions than direct tax deductions entail a larger fiscal cost because fewer assets are accumulated at retirement, leading to lower pension benefits and less tax collected on withdrawals.

[26] A credit rate of t is economically equivalent to a match rate on the contribution of t/(1-t). For example, a 25% refundable tax credit is economically equivalent to a matching contribution of one-third. This is because the tax credit rate is expressed as an inclusive rate (i.e. including the

low-income earners, just as when the tax credit is expressed as a fixed nominal amount. However, as non-tax incentives are not linked to the individual's tax status, the value of the incentive is not capped by the tax liability. Therefore all individuals can fully benefit from them as long as they fulfil the entitlement requirements (e.g. having an income below a certain level, contributing a certain proportion of income).

73. Moreover, non-tax incentives are automatically saved in the pension account, while it may not be the case for tax incentives (in particular tax credits and to some extent tax deductions when they need to be claimed). Non-tax incentives are indeed directly invested in the pension plan, therefore increasing the assets accumulated at retirement and future pension benefits. As explained before, if individuals benefiting from a tax credit/deduction do not increase their after-tax contributions in anticipation for the receipt of the tax refund, the value of the tax incentive may not be saved in the pension account.

74. In addition, matching contributions may have a larger impact on retirement savings than economically equivalent tax credits. A study by Saez (2009[43]) shows that individuals receiving a 50% matching contribution participate more in retirement savings plans and contribute more than individuals receiving an equivalent incentive framed as a 33% tax credit.[27] The results imply that taxpayers do not perceive the match and the tax credit to be economically identical. Some individuals may have perceived the 33% credit rate as equivalent to a 33% match rate, thereby reducing the incentive. Another factor could be that individuals had to wait for two weeks to receive the credit rebate. Due to loss aversion, contributing for example USD 450 and then receiving USD 150 back may feel more painful than contributing just USD 300 and obtaining a match of USD 150 to reach the same USD 450 total contribution.

75. Matching contributions as a substitute for tax incentives provide a higher overall tax advantage to low-income earners when tax rates increase with taxable income. This is despite the fact that the incentive on contributions is income neutral. When the matching contribution is associated with a "TTE" tax regime, returns on investment are taxable. Taxes paid on returns are higher compared to a traditional savings vehicle because matching contributions increase the level of after-tax contributions and generate additional investment income. Therefore, the overall tax advantage provided by matching contributions declines with the individual's income level as returns get taxed at a higher marginal tax rate. This is an important difference with tax incentives, which tend to offer larger tax incentives to higher-income earners in tax systems where tax rates increase with taxable income.

76. Substituting deductible contributions for government matching contributions may increase participation in retirement savings plans. For example, in Turkey, participation in pension plans was initially encouraged through tax-deductible contributions. In order to make the system more inclusive and boost savings, tax relief on contributions was replaced by government matching contributions in January 2013.[28] Between 2012 and

value of the credit), while the match rate is expressed as an exclusive rate (i.e. excluding the value of the matching contribution).

[27] The study compares participation in and contributions to IRAs in the United States. An "EET" tax treatment applies to IRAs. The matching contribution and tax credit in the experiment supplement the already existing tax incentive.

[28] The tax treatment of returns on investment and withdrawals has remained the same over time, with returns taxed upon withdrawals and withdrawals tax exempt.

2013, the number of new participants increased by 65%, suggesting that government matching contributions increased the attractiveness of saving for retirement for some people.

77. From the point of view of the government, the difference between tax and non-tax incentives stems from how salient is the cost of promoting retirement savings. The budgetary cost of a financial incentive would ordinarily be the same whether incurred in the form of a direct spending (non-tax incentive) or an equal amount of tax expenditure (tax incentive). Tax expenditures however involve a cost less salient or obvious than the cost of a government spending programme.

Adding non-tax incentives to tax incentives

78. Policy makers need to keep in mind the starting point when designing financial incentives. Most OECD countries already have in place tax incentives. Yet, policy makers could add non-tax incentives on top of the existing tax incentives to smooth out the incentives to save for retirement across income groups.

79. For example, introducing matching contributions when retirement savings already enjoy an "EET" tax regime would increase the tax advantage on contributions for all earners in the same proportion (equivalent to the match rate). At the same time, it would also increase assets accumulated, pension benefits and the amount of tax due on the latter. That increase in tax due on withdrawals would hit higher-income earners harder, as they are the ones subject to the highest marginal tax rates. All in all, the introduction of a matching contribution would increase the overall tax advantage for all individuals, but less so for high-income earners. It therefore helps smoothing out the tax advantage across income groups.

80. When the policy objective is to smooth out the tax advantage across income groups, countries may be willing to incur an additional fiscal cost by introducing a non-tax incentive on top of an "EET" tax regime. In the long run, this additional cost is smaller than the direct spending on the non-tax incentive, as it is partially compensated by an increase in taxes collected on the higher withdrawals. The additional cost could also be limited by capping matching contributions, targeting matching contributions or subsidies to specific groups of people, or capping the amount of contributions that can be deducted.

Using the financial resources embodied in financial incentives to pay higher public pension benefits

81. The financial resources embodied in financial incentives to promote retirement savings could be used instead to increase pension benefits in public PAYG schemes. This is related to the question of how best to allocate government's money to support retirement provision. To address this question, what follows uses hypothetical scenarios to understand the implications of removing financial incentives.

82. The baseline scenario represents the current situation where there are financial incentives for retirement savings. It assumes that an average earner subject to a constant 30% marginal tax rate contributes 10% of gross wages yearly to an "EET" retirement savings plan from age 20 to 64 and withdraws benefits afterwards in the form of a 20-year fixed nominal annuity. The overall cost to the government comes from the tax exemption of returns on investment. Assuming average earnings of EUR 35 000, inflation of 2%, productivity growth of 1.25%, real return of 3% and real discount of 3%, the total fiscal cost over the lifetime of the individual amounts to EUR 27 844 in present value

terms and the after-tax yearly pension income the individual would receive amounts to EUR 54 854.

83. Removing tax incentives and using the money to finance additional public pension benefits would reduce the overall level of benefits compared to the baseline. The money freed from removing the tax incentive (EUR 27 844 in present value) can finance an after-tax yearly additional public pension of EUR 19 706, or 36% of the pension income generated by a full career of contribution into a tax-incentivised retirement plan (EUR 54 854).

84. To cover the gap in pension income while keeping the cost to the government constant, the individual would need to save in a non-tax-favoured savings vehicle ("TTE"). Contributions to a "TTE" vehicle would not increase the fiscal cost for the government, as this tax regime is the reference for the taxation of savings. The individual would need to contribute 9% of gross wages pre-tax, or 6.3% after-tax, into a "TTE" vehicle to reach the same level of benefits as in the baseline. This is less than the 10% contribution rate in the baseline.[29] However, it is not clear whether, without financial incentives, individuals would save that amount, in particular given that the "TTE" tax regime discourages savings as compared to consumption (Box 1).

85. The level of contributions in non-tax-favoured savings vehicles could be further reduced if the government creates a fund to accumulate and invest the money embodied in financial incentives over the lifetime of the individual. This would allow the government, as long as the resources accumulated are earmarked for this purpose only, to finance larger additional public pension benefits and reduce the amount of contributions that the individual would have to save in a non-tax-favoured plan to reach the same level of overall pension income as in the baseline scenario. The reduction in the contribution rate would depend on the returns earned by the portfolio investment of the government fund, which in turns would depend on whether this fund could invest in a large range of asset classes like any other pension fund or just in long-term government bonds.

6. Policy guidelines for countries to improve the design of financial incentives

86. This document has examined whether countries can improve the design of financial incentives to promote retirement savings. For this purpose, after examining the design of financial incentives in OECD and EU countries, it has assessed the overall tax advantage they provide to individuals, their impact on retirement savings and their cost to governments. The document has also compared different approaches to design financial incentives based on their inherent characteristics and within a common framework to assess the different implications for individuals and governments.

87. All countries provide financial incentives to promote retirement savings. Those financial incentives can take the form of tax incentives, taxing retirement savings more favourably than other types of savings, or non-tax incentives, paying money directly in the pension account of eligible individuals (matching contributions and fixed nominal subsidies). The most common tax incentive exempts contributions and returns on investment from taxation, and taxes withdrawals ("EET").

88. In all countries, financial incentives provide an overall tax advantage to individuals when contributing to an incentivised retirement plan rather than to another

[29] The pre-tax and after-tax contribution rates are equal as contributions are tax deductible.

type of savings vehicle, in the form of a reduction in total tax paid over their lifetime. The differences in the overall tax advantage observed across countries are due to the tax treatments applied to retirement plans and savings vehicles, the specific features of these tax treatments (e.g. partial taxation, tax-deductibility limits, tax credits), the presence of non-tax incentives, but also to the characteristics of the personal income tax system in each country (i.e. the tax brackets and the tax rates). In most countries, the overall tax advantage of financial incentives varies with the income level of the individual.

89. Financial incentives, tax and non-tax, can be effective tools to promote retirement savings. Allowing individuals to deduct pension contributions from taxable income encourages participation in and contributions to retirement savings plans for middle-to-high income earners, because individuals respond to the upfront tax relief on contributions that reduces their current tax liability. Low-income earners are however less sensitive to tax incentives, because they may lack sufficient resources to afford contributions, they may not have enough tax liability to fully enjoy tax reliefs, and the lack of understanding of tax-related issues is more serious among them. Low-to-middle income earners are more likely to respond to tax incentives by increasing their overall savings, while high-income individuals tend to reallocate their savings. Matching contributions and fixed nominal subsidies increase participation in retirement savings plans, especially among low-income earners for the latter, although the impact on contribution levels is less clear.

90. The total fiscal cost of financial incentives to promote retirement savings varies greatly across countries, but remains in the low single digits of GDP. For example, in Canada and the United States, where the voluntary pension systems are relatively mature and the generosity of tax incentives is moderate, the yearly cash-flow fiscal cost will fluctuate between 0.8% and 1.5% of GDP between 2015 and 2060. The time profile of the fiscal cost depends on the level of maturity of the pension system and the countries' population ageing.

91. The way individuals perceive different designs of financial incentives may distort plan choices and savings levels even though those designs may be economically equivalent under certain assumptions. Low levels of financial literacy and behavioural biases may lead some individuals to fail to choose the tax treatment that will provide them with the largest overall tax advantage. In addition, the value of any tax relief on contributions may not always be saved in the pension account depending on the type of incentive (tax deduction or tax credit) and the way the tax system is structured (relief provided automatically or through a claim). Non-tax incentives that are deposited directly in the pension account represent a better assurance that the incentive helps build larger pots of money to finance retirement. Finally, different designs can help targeting financial incentives at different income groups.

92. Based on the analysis of country practices and the comparison of the inherent characteristics of different approaches to design financial incentives to promote retirement savings, the following policy guidelines could help improving the design of financial incentives.

93. **Financial incentives are useful tools to promote retirement savings**. Financial incentives represent a less paternalistic way of increasing coverage and retirement savings than compulsion and automatic enrolment. They are likely to be moderately less effective, but keep individual choice and responsibility for retirement planning, as individuals are ultimately the best placed to evaluate their personal circumstances and determine the most appropriate level of retirement savings, taking into account all of their

sources of income. Using the financial resources embodied in financial incentives to pay higher public pension benefits would require individuals to contribute to non-incentivised plans to reach the same level of benefits that would be achieved with just saving in an incentivised plan, although at a lower rate. However, it is not clear whether, without financial incentives, individuals would save enough.

94. **Tax rules should be straightforward, stable and common to all retirement savings plans in the country**. Different tax rules applying according to who contributes (the employer or the individual), the type of retirement plan, or the income of the plan member may create confusion for people who may not have the ability to understand the differences and choose the best option for them. Frequent changes to tax rules may also reduce people's confidence in the system and prevent them to adequately plan ahead.

95. **The design of tax and non-tax incentives for retirement savings should provide at least tax neutrality between consuming and saving for all income groups**. Tax neutrality is achieved when the tax system does not distort individuals' choice over when to consume their income between today and tomorrow. As PAYG public pension systems are under increasing strain due to population ageing and financial sustainability concerns, the tax treatment of retirement savings should at least not discourage savings and it may even be justified to incentivise them more, in breach of tax neutrality. A number of different designs can reach tax neutrality, including the "EET" and "TEE" tax regimes under certain assumptions. In particular, when people are likely to face lower marginal tax rates during retirement than while working, introducing limits to the tax deductibility of contributions would restore the tax neutrality of the "EET" regime. Interactions with the public pension system and the general tax system should also be carefully analysed. People will refrain from saving for retirement if doing so reduces their entitlements to public pensions or other forms of tax reliefs.

96. **Countries with an "EET" tax regime already in place should maintain the structure of deferred taxation.** The upfront cost incurred at the introduction of the pension system with deferred taxation is already behind in most countries and the rewards in the form of large tax collection on pension income are coming.

97. **Countries should consider the fiscal space and demographic trends before introducing a new retirement savings system with financial incentives**. The maturity of the pension system and the demography influence the fiscal cost related to financial incentives. The fiscal cost also develops differently depending on the tax regime chosen, with a larger upfront cost in the case of the "EET" tax regime for example.

98. **Identifying the retirement savings needs and capabilities of different population groups could help countries to improve the design of financial incentives**. Individuals whose income is below or around the poverty line cannot afford to save for retirement and will rely on the safety net when reaching retirement. Specific incentives for those very-low-income earners are therefore not necessary. The need to save in complementary pension arrangements may differ across individuals, in particular when the public pension system delivers different replacement rates to different income groups. Financial incentives may need to be higher for those with higher savings needs.

99. **Tax credits, fixed-rate tax deductions or matching contributions may be used when aiming at providing an equivalent tax advantage to all income groups**. Financial incentives that equalise the tax relief provided on contributions for all individuals, independently of their income level and marginal income tax rate, help smoothing out the overall tax advantage across the income scale. They include tax credits

and fixed-rate deductions (as opposed to deductions at the individual's marginal tax rate), as well as matching contributions.

100. **Non-tax incentives, in particular fixed nominal subsidies, may be used when low-income earners save too little compared to their savings needs**. Non-tax incentives are better tools to encourage retirement savings among low-income earners, who are less sensitive to tax incentives. In particular, fixed nominal subsidies are likely to be more attractive because they are easier to understand than tax incentives. They can be targeted at disadvantaged groups, such as young workers or women.

101. **Countries using tax credits may consider making them refundable and converting them into non-tax incentives.** Individuals with a low tax liability can still benefit from tax credits when they are refundable, increasing the attractiveness of saving for retirement for low-income earners. The value of the credit could even be paid directly into the pension account (converting them into a non-tax incentive), in order to help individuals building larger pots to finance retirement.

102. **Countries need to update regularly tax-deductibility ceilings and the value of non-tax incentives to keep the attractiveness of saving for retirement**. Tax-deductibility ceilings for contributions tend to be updated yearly in line with inflation only, so that more individuals are likely to reach the ceiling over time and reduce their contributions to retirement plans. Keeping the same value of non-tax incentives (maximum matching contribution, subsidy) over time may reduce the attractiveness of saving for retirement and lower the positive impact on participation.

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