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Working Party on Private Pensions

SAVING FOR RETIREMENT AND THE ROLE OF PRIVATE PENSIONS IN RETIREMENT READINESS

2-3 June 2014

This document is circulated for discussion under the agenda of the WPPP meeting to be held on 2-3 June 2014.

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1. Introduction

1. People need to save enough to finance their retirement. People save or pay contributions to different pension plans during their working career in order to build pension rights, accrue benefits and/or accumulate assets that they will use to finance their retirement. Such plans include for instance pay-as-you-go (PAYG) public pension plans, defined benefit (DB) and/or defined contribution (DC) funded private pension plans. However, it is far from clear whether people are saving enough in those plans to finance retirement.

2. Private or more generally, funded pensions play an important role in the retirement income systems of many OECD countries. Funded private pensions complement public PAYG financed pensions, and in some countries represent the main source to finance retirement (e.g. in Australia or Chile). Together, funded and PAYG plans are integral parts of a country’s pension system. As part of the overall system, funded private pensions can therefore play a major role to avoid adequacy gaps. Moreover, the role of funded private pensions in the financing of retirement income may increase in the future as a result of reforms implemented in public pension systems.

3. The OECD Secretariat therefore began in 2011 a study to assess the role that private pensions play and could play in the retirement readiness of the working-age population.1 The study estimates the potential future pension income of today’s working-age population by calculating individuals’ actual accumulation of pension rights and pension assets in different pension plans available to them in their respective countries (e.g. PAYG public pensions, DB and DC private pensions) and complementing it with what individuals may accumulate going forward until they retire according to different agreed scenarios. It finally builds several indicators to address different policy questions with respect to the retirement readiness for working-age individuals and highlights the role that private pensions could play in this respect.

4. This report assesses role of private pensions in the retirement readiness of working-age individuals in six OECD countries (Chile, France, the Netherlands, Norway, the United Kingdom, and the United States). 2 It identifies subgroups of the population in each country that may be at greatest risk to be insufficiently prepared to finance their retirement and shows that there is room in some countries to strengthen the role of private pensions in order to decrease the proportion of people that may have insufficient retirement savings. As a result, the report draws some policy recommendations on how to further develop the complementary role of private pensions in retirement financing.

5. The study shows that private pensions already play an important role in complementing the retirement income of most of the countries examined, especially when they are mandatory. Yet, private pensions do not generally represent the main source to finance retirement, except for high-income individuals in some cases. Younger generations may be more likely than older generations to rely on private pensions at retirement, except when the private pension system has already been in place for a long time. While one could expect that younger generations will be better prepared for retirement thanks to the

1. This report has benefited from the financial support of the European Union. The contents of this report are the sole responsibility of the OECD and can in no way be taken to reflect the views of the European Union.

2. The OECD Secretariat would like to thank the Chilean Superintendence of Pensions, the Observatoire de l’Epargne Européenne, Netspar, the Fafro research institute and Lillevold & Partners for providing the results for Chile, France, the Netherlands, and Norway respectively, following the general framework agreed by the OECD Working Party on Private Pensions. Comments from Arne Magnus Christiansen from the Norwegian Ministry of Labour and Social Affairs, Joseph Woods from the Department for Work and Pensions in the United Kingdom and Mark Iwry from the U.S. Department of the Treasury are gratefully acknowledged.
bigger role that private pensions may play in the future, other factors, such as reforms in public pension systems and lower returns on investment going forward, may offset the positive impact of higher private pension benefits. Finally, a combination of higher coverage rates of private pensions and higher contributions, higher returns on assets, higher productivity, and higher effective age of retirement (leading to longer contribution periods) may increase the role that private pensions may play in making people better prepared for retirement.

6. Section 2 of the report assesses the role of private pensions in the retirement readiness of the working-age population in Chile, France, the Netherlands, Norway, the United Kingdom and the United States. It first briefly describes the methodology used to estimate the potential pension income at retirement of working-age individuals and to build indicators of retirement readiness. It then assesses the potential relative importance of private pensions in the total pension income at retirement. The following three subsections address different policy questions related to retirement readiness: Are working-age individuals saving enough to avoid poverty at retirement (section 2.3)? Are working-age individuals saving enough to be at least as well-off as the cohort already retired (section 2.4)? Are working-age individuals saving enough to maintain a certain level of their standard of living at retirement (section 2.5)? The analysis goes on with the assessment of the potential impact of housing wealth on retirement readiness (section 2.6). The section ends with the identification of population subgroups relying less on private pensions in retirement financing and section 4 concludes. The annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1, describes the full methodological framework and provides the detailed assumptions done for each country covered in the report.

7. This document is the final draft version of the project on Retirement Savings Adequacy approved by the WPPP at its June 2011 meeting (DAF/AS/PEN/WD(2011)5). The Secretariat intends to have a chapter based on this report in the forthcoming Pensions Outlook, scheduled to be published by early December 2014.

8. Delegates are cordially invited to address the following questions:

1. Do Delegates agree with the main policy recommendations in section 3 of the report based on the assessment of the role of private pensions in the retirement readiness of the working-age population in the six OECD countries studied?

2. Are there any issues in the document in need of improvement in order to circulate this work?

2. Assessing the role of private pensions in the retirement readiness of working-age individuals in selected OECD countries

2.1. Brief description of the methodology and indicators used

9. This section describes briefly the methodological framework used to estimate the potential future pension income of working-age individuals at retirement and to build indicators of retirement readiness. Annex A1 contained in the document DAF/AS/PEN/WD(2014)6/ADD1 provides the full description of the methodological framework followed by each country covered in the project.

10. The study uses household and individual survey data as well as administrative data. It collects information about individuals’ socio-economic characteristics, careers, earnings level, as well as pension rights and pension assets already accumulated in the pension system. It focuses on individuals aged 35 to 64 at the time of the data collection. Data refer to 2009, except for the Netherlands (2008).
11. As a baseline, the study only considers sources that are earmarked for retirement. This includes PAYG public pensions, funded private pensions, as well as safety-net or solidarity pensions. In the case of funded private pensions, occupational and personal pension plans are taken into account, independently of the financing vehicle (a pension fund or an insurance company for example) and of the type of plan. The study distinguishes two main pension plan types: funded plans where benefits depend on rights accumulated (e.g. traditional occupational DB pension plans in which benefits are determined by reference to a formula based on the number of years of service and the salary) and funded plans where benefits depend on assets accumulated (e.g. occupational DC pension plans, occupational hybrid pension plans or personal pension plans, in which benefits are determined by reference to the contributions paid and the investment return achieved with those contributions, with or without guarantees).

12. The study then complements individuals’ actual accumulation of pension rights and pension assets with what individuals may accumulate going forward until they retire according to different scenarios agreed at the Working Party on Private Pensions and between the participating countries. The study considers three scenarios representing different possible states of the world (pessimistic, optimistic and intermediate). They vary according to four economic variables (inflation, productivity, rate of return, and discount rate) and one behavioural variable (age of retirement).

13. Subsections 2.2 to 2.7 present different indicators under the intermediate scenario to assess the role of private pensions in the retirement readiness of working-age individuals. The intermediate scenario, as described in the common methodology (Annex A1 contained in the document DAF/AS/PEN/WD(2014)6/ADD1), assumes an inflation rate of 2%, an aggregate productivity growth of 1.5%, an average real rate of return of 3.5% and a discount rate of 2% for the next 30 or so years. It also assumes the same age of retirement as the one currently observed in each country.

14. Each of the indicators calculated in this report address different policy questions related to adequacy. To answer those questions, the study uses different reference incomes to determine adequacy. The first indicator focuses on the composition of pension income. It allows a direct assessment of the importance of private pensions in the total pension income at retirement.

15. The second indicator calculates the proportion of working-age individuals with a pension income at retirement below the poverty line. Preventing old-age poverty is of prime policy relevance in all countries. As a minimum requirement, people should therefore build enough rights and accumulate enough resources during their working life to be able to receive at retirement an income that puts them above their country official poverty line. The study uses the country-specific definition of poverty and the OECD definition of poverty (people are considered poor if they earn less than 50% of the median population income) to assess the role played by private pensions.

3. Safety-net pension programmes are targeted to pensioners with low means. They are usually non-contributory and financed from the state general budget.

4. An example of hybrid pension plan is a cash balance plan in which benefits depend on a rate of return credited to contributions, where this rate of return is either specified in the plan rules, independently of the actual return on any supporting assets (e.g. fixed, indexed to a market benchmark, tied to salary or profit growth, etc.), or is calculated with reference to the actual return of any supporting assets and a minimum return guarantee specified in the plan rules.


6. Minor deviations from these assumptions are described in each relevant country annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1.
16. The third indicator compares future generations of retirees with current generations of retirees. Whether future generations of retirees will be at least as well-off as current generations of retirees is another interesting policy question to address when assessing the retirement readiness of future retirees. In the context of growing economies, progress should allow future generations to do better than current ones. It is therefore interesting to assess how working-age individuals’ future potential pension income compares with current retirees’ average pension income. The study focuses the comparison on recent retirees, rather than the entire cohort of retirees, to compare individuals with more similar characteristics. This indicator also reflects the relative purchasing power at retirement of different subgroups of the population.

17. The fourth indicator focuses on the ability to maintain one’s standard of living at retirement using replacement rates. The replacement rate is defined as the ratio between pension income at retirement and pre-retirement earnings. Unfortunately, there is no consensus on the proper denominator to represent pre-retirement earnings. Final earnings are the measure most often used as the denominator to calculate replacement rates. They are used when assuming that people are interested in replacing the earnings they enjoy immediately prior to retirement. Final earnings replacement rates are however very sensitive to the last earnings value which can be particularly volatile. For example, people may reduce working hours just before retirement, compromising the usefulness of replacement rates based on final earnings. As an alternative to final earnings, career-average earnings can be used to calculate replacement rates. Using career-average earnings is in line with the consumption smoothing assumption of the life-cycle model when assuming that people are interested in replacing lifetime income. The study therefore calculates two replacement rates, using as a measure of pre-retirement earnings both final earnings and inflation-indexed career-average earnings.

18. As a general rule of thumb, a replacement rate of about two-thirds of final earnings is generally accepted as a reference. This rate is based on the assumption that households usually face lower expenses in retirement than they did while working (e.g. expenses related to work fall, loans and mortgages tend to be paid). This rule of thumb may not be fully appropriate however when comparing across countries with different pension systems. The study therefore uses two benchmark replacement rates, one common for all countries (66% of final earnings) and one country-specific, which depends on the objectives of the pension system of each country.

19. Housing can also play an essential role to complement pension incomes. It is the main asset that people have in many countries. The study therefore assesses the potential impact of housing wealth on retirement readiness in subsection 2.6. It considers the in-kind income of homeowners corresponding to the benefit of living in a home rent free, also called the “imputed rent”.

20. Subsection 2.7 summarises the results found for the intermediate scenario by identifying population subgroups relying less on private pensions at retirement and those at greatest risk of not being prepared for retirement. The study finally looks at the impact on the results of changing the scenario in subsection 2.8.

2.2. How much private pensions may represent in the total pension income at retirement?

21. Depending on their mandatory or voluntary nature, funded private pensions may cover different shares of the working-age population in different countries. One the one hand, public pensions are contributory and mandatory in all the countries studied except Chile. In Chile, people are entitled to a

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7. While homeowners do not need to pay a rent to live in a house, they have additional expenses as compared to renters. For instance, they usually have to pay property taxes and have other expenses to keep up the place.
public pension (i.e. solidarity pillar) if they have accumulated insufficient assets in their mandatory DC plan to give them a retirement income above a certain income threshold. Private pensions on the other hand are mandatory in half of the countries studied: Chile, the Netherlands and Norway (green cells in Table 1 represent mandatory plans). In the Netherlands and Norway, all working-age individuals will receive both a public pension and a private pension at retirement. In the other countries, private pensions are voluntary (cells in yellow) and may cover the working-age population only partially at retirement. Coverage rates may therefore vary from 0.25% of the working-age population for DB occupational pension plans in France to 75% for DC and hybrid occupational plans and personal pension plans in the United States. Personal pension plans are also voluntary in the Netherlands and may cover 47% of the working-age population.

### Table 1. Coverage of different pension income sources at retirement in selected OECD countries

<table>
<thead>
<tr>
<th>Country</th>
<th>PAYG / public pension</th>
<th>FP based on rights</th>
<th>FP based on assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>47% of the population, mostly medium-income, older generations, men, in the private sector, self-employed</td>
<td>Non-existent</td>
<td>Universal</td>
</tr>
<tr>
<td>France</td>
<td>Universal</td>
<td>0.25% of the population, mostly high-income</td>
<td>39% of the population, mostly high-income, younger generations, men, in the private sector, self-employed</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Universal</td>
<td>Universal</td>
<td>47% of the population, mostly high-income, middle-aged generations, men</td>
</tr>
<tr>
<td>Norway</td>
<td>Universal</td>
<td>Universal in the public sector</td>
<td>42% of the population, mostly high-income, younger generations, men, in the private sector</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Universal</td>
<td>52% of the population, mostly high-income, middle-aged generations, women, in the public sector, employees</td>
<td>67% of the population, mostly high-income, younger generations, men, in the private sector</td>
</tr>
<tr>
<td>United States</td>
<td>Universal</td>
<td>33% of the population, mostly high-income, older generations, men, in the public sector, employees</td>
<td>75% of the population, mostly high-income, employees</td>
</tr>
</tbody>
</table>

Note: “FP” stands for funded pensions. Cells in green represent cases where the corresponding type of pension plan is mandatory. Cells in yellow represent cases where the corresponding type of pension plan is voluntary or conditional on certain requirements. Coverage rates are calculated as the proportion of working-age individuals who may receive the corresponding pension income source at retirement.

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8. In the case of the Netherlands, where the occupational pension system is quasi-mandatory, only individuals working as self-employed or in sectors not covered by collective agreements during their entire career will not build any entitlement in the occupational DB pension system.
22. Coverage rates may vary according to different socio-economic subgroups in the case of voluntary private pensions.\(^9\) High-income individuals are generally more likely to be covered by a private pension plan than medium and low-income individuals. Depending on the design of the private pension system in each country, subgroups most likely to be covered may change. For instance, when a new system has been recently introduced, younger generations are more likely to be covered at retirement than older generations because they have more time to enrol before retirement. This is the case for instance for occupational DC plans in France (PERCO plans introduced in 2003) and occupational DC plans in the United Kingdom (automatic enrolment into occupational pension plans introduced in 2012). While men are usually more likely to be covered than women, this may change when private pensions are more common in the public sector than in the private sector (for example occupational DB plans in Norway and in the United Kingdom).

23. State and public pensions may be the largest component of the potential future pension income at retirement in all the countries studied, except in Chile. Figure 1 shows that, on average, the importance of state and public pensions in the pension income at retirement may be above 50% in France, the Netherlands, Norway, the United Kingdom and the United States. Public pensions may represent as much as 95% of the total pension income at retirement in France, where private pensions are voluntary and not widespread. At the other extreme, in Chile, people who entered the labour market after 1\(^{st}\) January 1981 have to participate in the funded DC system, but are not covered by any contributory PAYG pension system. Public pensions in that country represent a safety-net programme which complements the pension received from the DC system at least to up to the basic solidarity pension for people with a low DC pension and claiming their benefits. Private pensions may have a greater importance in the total pension income at retirement when they have a mandatory nature (private pensions may represent 73% of the total pension income in Chile, 43% in the Netherlands, 24% in Norway), but also when voluntary private pensions have a long standing history in the country (36% in the United Kingdom and in the United States).

**Figure 1. Average composition of potential pension income at retirement in selected OECD countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>PAYG / public pension</th>
<th>FP based on rights</th>
<th>FP based on assets</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>27</td>
<td>95</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>France</td>
<td>73</td>
<td>5</td>
<td>39</td>
<td>15</td>
</tr>
<tr>
<td>Netherlands</td>
<td>57</td>
<td>71</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Norway</td>
<td>64</td>
<td>64</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>64</td>
<td>64</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>64</td>
<td>64</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Note: “FP” stands for funded pensions. The category “Other” for Norway represents the collectively negotiated labour market pension system (AFP).

\(^9\) This is in line with a previous OECD study on private pension coverage (see *OECD Private Pensions Outlook 2012*).
24. Aside from its mandatory nature, other characteristics of the private pension system can explain the relative importance of private pensions in the total pension income, such as maturity and minimum contribution rate. For example, in Norway, even though occupational pensions are mandatory and DC plans may cover 42% of the working-age population, occupational DC pensions may only represent 3% of the total pension income at retirement on average in this country. Indeed, as occupational pension plans only became mandatory in 2006, only younger generations have the opportunity to build large pension pots at retirement. In addition, the mandatory contribution rate in DC plans is set at 2% of the salary. In the private sector, 58% of the workers are covered by such minimum arrangements. A large proportion of the population may therefore only accumulate small amounts of assets at retirement. Similarly, occupational DC pensions paid to members being automatically enrolled into an occupational pension plan (21% of the working-age population) may only represent 1% of the total pension income in the United Kingdom on average. Automatic enrolment is indeed being staged in over a period of six years, which started with the largest employers in 2012. As in Norway, the minimum contribution rate has been set at 2% as a starting point (but it will reach 8% from 2018).

25. The importance of private pensions in the total pension income may vary according to different socio-economic variables, in particular with the level of income. The importance of private pensions in the total pension income may increase with income in the six countries studied (see Figure 2). They may even represent the main source of pension income for high-income individuals in the Netherlands, the United Kingdom and the United States. In Chile, private pensions may be the main source of pension income for all income level groups and their importance may reach 87% of the total pension income for high-income individuals.

![Figure 2. Potential importance of private pensions in the total pension income at retirement, by level of income](image)

26. The importance of private pensions in the total pension income may be greater for men than for women, except in Chile and Norway (see Figure 3). The gap between men and women with respect to private pension benefits usually originates from a gap in coverage rates and differences in income levels (as private pension benefits are always earnings-related). The gap in coverage between men and women can be explained, in some countries, by the fact that part-time workers (more often women) are less often
enrolled in private pension plans than full-time workers.\(^{10}\) In Chile, although women are more likely than men to be eligible for a complementary public solidarity benefit, they tend to claim such benefits less often than men.\(^ {11}\) This means that some women may rely on their DC pension alone rather than a mix of DC and solidarity pensions. As a result, both men and women may have around 72-73% of their pension income coming from DC plans. In Norway, the coverage of occupational DB pensions is universal in the public sector. As women tend to work more often than men in that sector, they may rely more on private pensions than men at retirement.

**Figure 3. Potential importance of private pensions in the total pension income at retirement by gender, sector and employment status**

As a % of total pension income

![Graph showing potential importance of private pensions in total pension income at retirement by gender, sector and employment status.](image)

Note: The breakdown by gender is only provided for single individuals for the Netherlands, the United Kingdom and the United States.

27. The importance of private pensions in the total pension income at retirement may be greater for public sector workers than for private sector workers, except for France. In some countries, public sector workers have access to special private pension arrangements. This is the case in Norway, where occupational DB pension plans are mandatory in the public sector, and in the United Kingdom and the United States, where public sector workers are more often covered by occupational DB plans than private sector workers. In the Netherlands, access to private pension plans is similar in both sectors, but public sector workers may enjoy higher earnings during their career due to a relatively higher average educational level as compared to workers in the private sector (most low-skilled jobs in the public sector have been privatized over the last decade).\(^{12}\) In contrast, in France, the expected growth of occupational DC plans for private sector workers (PERCO) may explain why private pensions may have a greater importance in the total pension income at retirement for private sector workers.

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11. People may not claim their solidarity benefits because of a lack of knowledge, although the Chilean authorities argue that the population has been widely informed when the new solidarity pillar was introduced. The amount of personal and family information that needs to be disclosed may also restrain some people from claiming their benefits.

12. The study mostly identifies civil servants working for the central government as public sector workers for the Netherlands.
28. The existence of specific private pension arrangements for self-employed people may help them to complement their state pension. Figure 3 indeed shows that, in France, the importance of private pensions in the total pension income for self-employed people is greater than for employees, thanks to the existence of a specific private pension arrangement which helps the self-employed to complement their basic public pension (they do not have access to complementary public pension plans). In contrast, self-employed people in the United Kingdom or in the United States do not have specific occupational private pension schemes. They only have access to personal pension plans to complement their public pension. This may explain why they may rely less on private pensions at retirement than employees. In Chile, participation in the DC pension system is voluntary for the self-employed.13

29. Finally, younger generations may be more likely than older generations to be covered by a private pension arrangement that has been recently introduced. As a consequence, younger generations may rely more on these arrangements at retirement. Figure 4 then shows that, in France and the United Kingdom, the importance of private pensions in the total pension income may be greater for younger generations following the introduction of new plans or new features (automatic enrolment for example) in the private pension system. In Chile also, younger generations may rely more on private pensions at retirement. Younger generations may be less often eligible for solidarity benefits and / or may claim solidarity benefits less often.14 In the Netherlands, Norway and the United States, the importance of private pensions may be constant across generations. In Norway and the United States, DB and DC pensions may however evolve in different directions, with occupational DB pensions having a greater importance for older generations and DC pensions (occupational and personal) having a greater importance for younger generations.

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13. Since 2012, self-employed people are automatically enrolled in the DC system, with the option to opt-out. Contributions should become mandatory for the self-employed as of 2015. The study however does not take into account the effects of this reform on the coverage rate for the self-employed and keeps the pre-reform rates constant.

14. Although the model predicts a higher density of contributions for younger generations, the assumed real rate of return in the intermediate scenario (3.5%) going forward is much lower than what older generations have enjoyed on average (9%). It is not clear therefore how these factors may affect the proportion of people eligible for solidarity benefits across generations.
2.3. Are working-age individuals saving enough to avoid poverty at retirement?

The definition of poverty varies across countries. The poverty measure can be an absolute measure to identify if people are living above a minimum income needed to avoid extreme hardship. The poverty measure can also be a relative measure. This relative measure of poverty identifies the extent to which there is inequity between individuals. People getting further and further away from the median income are considered poor as they get increasingly disenfranchised. Countries like Chile, the Netherlands and the United States use an absolute measure of poverty. Countries like France and the United Kingdom use a relative measure of poverty. In these countries, the poverty line threshold corresponds to 60% of the median population income. There is no official definition of poverty in Norway.

The percentage of people that may retire with a pension income below the country-specific poverty threshold varies widely across the countries examined. Indeed, pensioners cannot fall into poverty in the Netherlands, while 37% of working-age individuals may have a pension income at retirement below the poverty line in Chile (see Table 2). France, the United Kingdom and the United States lie in-between where respectively 20%, 14% and 6% of the people may retire with a pension income below their country-specific poverty threshold.
Table 2. Proportion of working-age individuals with a potential pension income at retirement below their country-specific poverty threshold, by socio-economic variables

<table>
<thead>
<tr>
<th></th>
<th>Chile</th>
<th>France</th>
<th>Netherlands</th>
<th>United Kingdom</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>All individuals</td>
<td>37</td>
<td>20</td>
<td>1</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Low income</td>
<td>51</td>
<td>68</td>
<td>3</td>
<td>48</td>
<td>33</td>
</tr>
<tr>
<td>Medium income</td>
<td>41</td>
<td>10</td>
<td>1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>High income</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>35-39</td>
<td>40</td>
<td>23</td>
<td>1</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>40-44</td>
<td>37</td>
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<td>5</td>
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<td>45-49</td>
<td>39</td>
<td>19</td>
<td>1</td>
<td>13</td>
<td>6</td>
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<tr>
<td>50-54</td>
<td>37</td>
<td>17</td>
<td>1</td>
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<td>Men</td>
<td>26</td>
<td>9</td>
<td>2</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Women</td>
<td>50</td>
<td>31</td>
<td>3</td>
<td>36</td>
<td>27</td>
</tr>
<tr>
<td>Public sector</td>
<td>27</td>
<td>13</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Private sector</td>
<td>36</td>
<td>21</td>
<td>1</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Employees</td>
<td>34</td>
<td>19</td>
<td>..</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Self-employed</td>
<td>40</td>
<td>29</td>
<td>..</td>
<td>32</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: The breakdown by gender is only provided for single individuals for the Netherlands, the United Kingdom and the United States.

32. Differences in the role of social assistance may explain some of the differences in the proportion of people retiring with a pension income that may be below their country-specific poverty threshold. In the Netherlands, social assistance benefits complement pensioners’ income up to the social minimum (EUR 1,000 per month in 2010 terms) if they have incomplete public pension entitlements and low amounts of occupational pension and wealth. As the social minimum corresponds to the official Dutch poverty line, pensioners cannot have an income below that threshold. In Chile, in theory, the system should allow all pensioners to retire with a pension income above the poverty line, as people with a DC pension below a certain income threshold can claim solidarity benefits to complement their DC pension at least up to the basic solidarity pension, which is above the poverty line. However, in practice, a large proportion (57%) of individuals entitled to a solidarity pension does not claim it. This is why 37% of working-age individuals in Chile may retire with a pension income below the poverty line.

15. The study shows that only 3% of working-age individuals may receive social assistance benefits at retirement to complement incomplete public pension entitlements (mostly first-generation immigrants).

16. Actually, some individuals may have a pension income at retirement below the poverty line if they have incomplete public pension entitlements and too much wealth to receive social assistance benefits. This is why numbers in Table 2 are not null for the Netherlands. However, when taking into account their total income (i.e. including wealth), these individuals do not live in poverty.

17. This threshold is the income at which 60% of the population would have an income below. It is calculated using the National Socio-economic Survey (CASEN).

18. This proportion is higher than the number from the official statistics on poverty in Chile. According to the CASEN survey, 15.1% of the population was living in poverty in 2009. This rate is only 10% for people aged 60 to 69 and 7.7% for people aged 70 and older. The difference could come from the fact that the study only takes into account pension income and excludes other subsidies, transfers and earnings.
33. Table 3 compares across countries the proportion of people that may retire with a pension income below the OECD poverty threshold. Using the OECD definition, the poverty line threshold corresponds to 50% of the median population income. The proportion of people that may have a pension income at retirement below that poverty threshold is lower using this definition for France and the United Kingdom, as their country-specific definition is more binding. It is the opposite for Chile 19 and the United States. In Norway, none of the working-age individuals may have a pension income at retirement below this relative poverty threshold, as the OECD poverty line threshold is lower than the minimum pension. In the Netherlands, changing the definition of poverty does not change the picture, as the OECD poverty line threshold is actually lower than the absolute threshold.

Table 3. Proportion of working-age individuals with a potential pension income at retirement below the OECD poverty threshold, by socio-economic variables

<table>
<thead>
<tr>
<th>In per cent</th>
<th>Chile</th>
<th>France</th>
<th>Netherlands</th>
<th>Norway</th>
<th>United Kingdom</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>All individuals</td>
<td>74</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Low income</td>
<td>98</td>
<td>57</td>
<td>2</td>
<td>0</td>
<td>20</td>
<td>75</td>
</tr>
<tr>
<td>Medium income</td>
<td>81</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>High income</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>35-39</td>
<td>73</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>40-44</td>
<td>75</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>45-49</td>
<td>77</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>50-54</td>
<td>74</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>55-59</td>
<td>66</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>60-64</td>
<td>57</td>
<td>19</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Men</td>
<td>61</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Women</td>
<td>89</td>
<td>25</td>
<td>1</td>
<td>0</td>
<td>17</td>
<td>51</td>
</tr>
<tr>
<td>Public sector</td>
<td>54</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Private sector</td>
<td>72</td>
<td>17</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Employees</td>
<td>66</td>
<td>16</td>
<td>..</td>
<td>0</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Self-employed</td>
<td>87</td>
<td>23</td>
<td>..</td>
<td>0</td>
<td>13</td>
<td>24</td>
</tr>
</tbody>
</table>

Note: The breakdown by gender is only provided for single individuals for the Netherlands, the United Kingdom and the United States.

34. In all the countries studied, the proportion of people that may retire with a pension income below the poverty line (using either the country-specific definition or the OECD definition of poverty) is higher for people on low income, women, private sector workers and self-employed people. For Chile, these people usually have lower earnings and density of contributions during their career than high-income people, men, public sector workers, and employees respectively. For the other countries, the groups of people the more at risk of retiring with a pension income below the poverty line usually rely less on private pensions at retirement than high-income people, men, public sector workers or employees, although this rule has some exceptions. For example, private pensions may have a greater importance in the total addition, most current pensioners get their pension income from the former PAYG system while the study only covers people who will get a pension income from the new funded system.

19. Using the same relative measure of poverty, OECD Pensions at a Glance 2013 shows that 19.8% of the people aged 65 and older in Chile in 2010 were living in poverty. This is much lower than 74% found in this study. Despite the potential explanations for the discrepancy provided in footnote 17, this result suggests that the approach taken by the Chilean authorities to determine who claims benefits from the solidarity pillar (keeping low current take-up rates constant over time) may be too restrictive.
pension income of self-employed people in France, but they may still be more likely to retire with a pension income below the poverty line than employees.

35. One would expect that, *ceteris paribus*, younger generations would be less at risk of having a retirement income below the poverty line than older generations, especially when the complementary role of private pensions is expected to become more important over time. However, other factors, such as reductions in public pension benefits (resulting, for example, from reforms implemented to address financial sustainability problems) may change this. The study shows that the *a priori* expectation may not be verified in all the countries studied, especially for France and the United States.

36. In the United Kingdom, people aged 60 to 64 may be at greater risk of retiring with a pension income below the poverty line. They may be worse-off than people in other age groups because they are less likely to complement their state pension with a private pension income. Other age groups may have a comparable risk of retiring with a pension income below the poverty line.

37. In France, younger generations may be more likely to retire with a pension income below a relative poverty line than their elders. This may be explained by reforms to the public pension system. First, since the reform of 1993, benefits are calculated based on the best 25 years of the career, with past salaries revalued in line with prices. This means that part of the increases in purchasing power obtained during the career are removed for the calculation of the pension. If younger generations enjoy higher growth during their career than their elders (the intermediate scenario assumes a constant yearly aggregate productivity growth of 1.5%), the gap between their wages and their pension will widen and their pension will be worth less relatively to the one of their elders. Second, since the reform of 2003, the length of the contribution period needed to get a full rate state pension evolves in parallel with gains in life expectancy. In the intermediate scenario for France, some people may retire before having contributed up to the full rate.\(^\text{20}\) As younger generations are expected to live longer, they may be more likely to receive a public pension calculated based on a reduced rate. Finally, reforms of the complementary public regimes can also impact younger generations more heavily. To balance the accounts of these regimes, social partners indeed agreed to lower the revaluation of the point value used to calculate benefits. The study assumes that it only evolves in line with prices minus 1 percentage point as of 2013 (without decreasing in absolute value). As younger generations will retire further away in the future, the value of their complementary public pension will be worth less relatively to the one of generations retiring soon.

38. In the United States also, younger generations may be at greater risk of retiring with a pension income below the poverty line, especially when measured in relative terms. The rise in the official age of retirement from 65 to 67 may translate into lower state pension benefits if people continue to retire at 65 as is assumed in the intermediate scenario. For younger generations, retiring two years before the official age leads to a reduction of 13% of their state pension. Another reason why younger generations may be worse-off than their elders is the shift from occupational DB plans, where workers receive a life annuity based on years of service and final salary, to occupational DC plans, where workers themselves are responsible for

\(^\text{20}\) In the intermediate scenario for France, the study assumes that people retire when they reach a target replacement rate (for those in employment just before retirement) or when they are entitled to a full rate public pension (for the others). The target replacement rate is calculated by assuming that an individual retires as soon as his/her well-being as a retiree exceeds his/her well-being as a non-retiree. The target replacement rate is therefore equal to the inverse of his/her preference for inactivity, whatever the gain in pension level s/he would get by retiring later. For men, target replacement rates are randomly selected from a distribution with the median equal to 70%, while for women they are selected from a distribution with the median equal to 66%. For some people, this means they will retire before being entitled to a full rate public pension.
their own saving. Data show that DC plans may provide a pension income at retirement less than half what DB plans may provide to people covered by such plans (under the assumption of returns on investment equal to 3.5% going forward). This can be due to the lower overall contribution rates to DC plans as compared to DB plans.

2.4. Are working-age individuals saving enough to be at least as well-off as the cohort already retired?

39. Depending on the country, between 28% and 59% of working-age individuals may have a pension income at retirement lower than what current retirees, who left the labour market recently, have on average. It is interesting to note, from looking at Figure 5, that trends are similar across socio-economic subgroups in the five countries with available information. In Chile, France, the Netherlands, the United Kingdom and the United States, subgroups of the population that are the most likely to have a pension income below the one that recent retirees currently receive are low-income individuals, older generations (except for Chile), women, private sector workers and self-employed people. This indicates as well that these people may have a lower purchasing power at retirement than other population subgroups (medium and high-income individuals, younger generations, public sector workers and employees).

40. The decreasing proportion of individuals with a potential pension income at retirement below the one of current retirees for younger generations of working-age individuals primarily reflects the fact that they will be living in a wealthier society than current retirees. The intermediate scenario assumes an aggregate productivity growth of the economy of 1.5% per year. At the same time, pension benefits of current retirees usually only grow with inflation in most countries. Younger individuals will therefore accumulate pension rights in a wealthier and wealthier society as compared to the one in which current retirees have lived in. Their pension income at retirement is therefore less and less likely to fall below the one of current retirees, which will only evolve with inflation in the future.

41. The older generations in Chile do not follow that pattern as the proportion of individuals likely to have a pension income below recent retirees’ average pension income decreases for the last two age groups. There are three main reasons that may explain this result: (i) older workers today may have moved from the old public DB pension system to the new private DC pension system and received recognition bonds in their DC accounts to reflect their contributions to the old DB system; (ii) workers who switched to the new DC system were younger and more educated than the average individual, thus they were also more likely to have more assets accumulated in their DC account; and (iii) older workers have benefited from higher real rates of return than what younger workers enjoyed and also higher than the returns assumed for the future in the intermediate scenario.
2.5. Are working-age individuals saving enough to maintain a certain level of their standard of living at retirement?

42. The study uses two different measures of replacement rates to assess whether working-age individuals are saving enough to maintain a certain level of their standard of living at retirement. The replacement rate is defined as the ratio between the pension income at retirement and pre-retirement earnings. Final earnings are the measure most often used as the denominator to calculate replacement rates. Final earnings just before retirement are used when assuming that people are interested in replacing the earnings they enjoy immediately prior to retirement. As an alternative to final earnings, career-average earnings can be used as the denominator to calculate income replacement rates. It is used in replacement rates calculations when assuming that people are interested in replacing lifetime income, in line with the consumption smoothing assumption of the life-cycle model.
43. The relative size of final and career-average earnings replacement rates and the magnitude of their difference partially reveal the dominant real wage career path in each country. Median replacement rates are higher when they are calculated with respect to career-average earnings rather than with respect to final earnings in all countries except in Chile and the Netherlands (see Table 4). Generally speaking, people experience the largest gains in real wages during the early part of their career, with lower gains, even sometimes negative gains, in the later part of their career. Constantly growing real wages during one’s career could lead to final earnings being larger than career-average earnings (leading to inversely related replacement rates). This could be the main real wage career path in France and the United Kingdom, where the magnitude of the difference between the two types of replacement rates is large (30 to 35 percentage points). Another situation where final earnings may be larger than career-average earnings is when wages grow during most of the career and fall slightly at the end of the career. This could be the leading path in Norway, where both replacement rates are relatively close (61% when using final earnings and 67% when using career-average earnings). For Chile and the Netherlands, median replacement rates are slightly lower when they are calculated with respect to career-average earnings rather than with respect to final earnings. This may reflect the fact that people tend to work fewer hours as their retirement date approaches, leading final earnings to fall below career-average earnings on average, explaining why the corresponding replacement rates are higher.

Table 4. Median replacement rates at retirement for different definitions of pre-retirement earnings

<table>
<thead>
<tr>
<th>Country</th>
<th>Final earnings replacement rate</th>
<th>Career-average earnings replacement rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>43</td>
<td>40</td>
</tr>
<tr>
<td>France</td>
<td>63</td>
<td>95</td>
</tr>
<tr>
<td>Netherlands</td>
<td>71</td>
<td>67</td>
</tr>
<tr>
<td>Norway</td>
<td>61</td>
<td>67</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>79</td>
<td>114</td>
</tr>
<tr>
<td>United States</td>
<td>59</td>
<td>78</td>
</tr>
</tbody>
</table>

44. The study shows that the proportion of people that may fail to reach a reference replacement rate of 66% of final earnings varies significantly across the selected OECD countries under review (see left panel of Table 5). As a general rule of thumb, a replacement rate of about two-thirds (66%) of final earnings is generally accepted as a reference. This rate is based on the assumption that households usually face lower expenses in retirement than they did while working (e.g. expenses related to work fall, loans and mortgages tend to be paid). Only 32% of working-age individuals in the United Kingdom may fail to retire with a pension income replacing 66% of their last wage. At the other extreme, in Chile, 84% of working-age individuals may fail to reach a replacement rate of 66%. This proportion is around 60% in France, Norway and the United States, and 40% in the Netherlands.
Table 5. Proportion of working-age individuals with a replacement rate below a reference replacement rate

<table>
<thead>
<tr>
<th>Country</th>
<th>Common reference replacement rate</th>
<th>Proportion of individuals below</th>
<th>Country-specific reference replacement rate</th>
<th>Proportion of individuals below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>None</td>
<td>84</td>
<td>None</td>
<td>84</td>
</tr>
<tr>
<td>France</td>
<td>66% of final earnings</td>
<td>61</td>
<td>66% of final earnings</td>
<td>61</td>
</tr>
<tr>
<td>Netherlands</td>
<td>70% of career-average earnings</td>
<td>41</td>
<td>66% of final earnings</td>
<td>41</td>
</tr>
<tr>
<td>Norway</td>
<td>66% of final earnings</td>
<td>64</td>
<td>66% of final earnings</td>
<td>64</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>50% to 80% of final earnings</td>
<td>32</td>
<td>None</td>
<td>32</td>
</tr>
<tr>
<td>United States</td>
<td>None</td>
<td>59</td>
<td>None</td>
<td>59</td>
</tr>
</tbody>
</table>

45. This rule of thumb of 66% reference replacement rate may however not be fully appropriate when comparing across countries with different pension systems and some countries actually use a different reference. The structure and objectives of each pension system are indeed specific and may reflect different old-age expenditure needs. For example, the reference replacement rate may differ when the state covers health expenses for pensioners and when it does not. Table 5 (right panel) indeed shows that some of the countries studied have chosen different levels for the reference replacement rate. In Norway and France, the general rule of two-thirds is used as a reference, but the other countries use other references. The pension system in the Netherlands aims at providing a total pension (state pension plus occupational mandatory pension) equivalent to 70% of career-average earnings. In the United Kingdom, the Pensions Commission 2004 defined different replacement rate benchmarks for different income levels. They used benchmark replacement targets of 80% of gross earnings for lowest earners, declining to 67% for median earners and to 50% for top earners. In contrast, there is no explicit benchmark replacement rate nor a consensus implicit benchmark replacement rate that the U.S. government uses for the combination of public pensions provided by the social security and the private-sector voluntary retirement benefits provided by the occupational system and individual private savings.21 There is no reference replacement rate for Chile either, as it is a DC system that does not guarantee a minimum rate of return.

46. The proportion of people that may fail to reach a reference replacement rate still varies significantly across the countries studied when using country-specific reference replacement rates. It varies from 32% in the United Kingdom to 64% for Norway. For the United Kingdom, both references lead to a similar proportion of individuals with a replacement rate below the benchmark. In contrast, 56% of working-age individuals may fail to reach the reference replacement rate embedded in the Dutch pension system.

47. Figure 6 shows that, except in Chile, medium and high-income individuals may be more likely than low-income individuals to have a replacement rate at retirement below the country-specific reference replacement rate.22 This originates from the fact that state pensions usually provide higher replacement

21. People are often advised to plan to replace most of their pre-retirement income, and figures such as 80% or other comparable percentages are often used by retirement planners. Some refer to slightly lower levels such as 70%, while others recommend a benchmark replacement rate higher than 80% for the reason that retirees in the United States have to face long-term care and other health care needs. Eventually, the total target replacement percentage depends on the decisions made by individuals (and often by their employers).

22. Figures 6 to 8 present the proportion of working-age individuals with a replacement rate below the 66% commonly used benchmark for the United States and Chile, as there is no country-specific reference replacement rate for these countries.
rates for low-income individuals, due to their progressivity. Examples of progressive programmes include safety-net benefits (found in all countries), minimum pensions (as in France and Norway) and flat rate state pensions (as in the Netherlands and the United Kingdom). Despite higher benefits in absolute terms (as demonstrated by the indicator calculating the proportion of people retiring with a pension income below the poverty line and by the comparison with current retirees), medium and high-income individuals may therefore have more difficulties than low-income individuals to maintain the same standard of living at retirement. More than half of medium-income individuals in France, the Netherlands, Norway and the United States may fail to reach their country-specific reference replacement rate for example.

48. In Chile, low and medium-income individuals may be more at risk of failing to reach a 66% benchmark replacement rate. The public solidarity pillar is also progressive in Chile, but it only represents 27% of the total pension income at retirement on average. Conversely, DC pensions represent the main source of pension income at retirement, are not progressive and provide a higher replacement rate for high-income individuals.

Figure 6. Proportion of working-age individuals with a replacement rate below each country-specific reference replacement rate, by level of income

In per cent

![Graph showing the proportion of working-age individuals with a replacement rate below each country-specific reference replacement rate, by level of income.](image)

Note: For Chile and the United States, the numbers represent the proportion of working-age individuals with a replacement rate below the 66% commonly used benchmark, as there is no country-specific reference replacement rate.

49. Men may be more at risk than women of failing to reach a reference replacement rate, except in Chile and the United States (Figure 7). The main factor is related to differences in income levels across genders. As women tend to be more often on low earnings during their career than men, they can get the most of the generosity of the state pension system through safety-net programmes or minimum pensions, and therefore reach higher replacement rates at retirement. As already said before, the fact that men may have lower replacement rates at retirement does not mean that they may have lower benefits in absolute value. The two previous indicators have indeed shown that men may enjoy higher benefits than women on average. These benefits however may replace a lower share of their pre-retirement income. In Chile, the

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23. The definition of low-income individuals used in this study (people with the 20% lowest final earnings) may also explain higher replacement rates for this income group. Households with relatively low final earnings compared to their earnings earlier in life have high replacement rates with regard to final earnings.
pension system is less progressive and women tend to claim less often than men their solidarity benefit, even when they are entitled to it. Women may therefore retire with lower replacement rates than men and be more at risk of failing to reach the 66% benchmark.

Figure 7. Proportion of working-age individuals with a replacement rate below each country-specific reference replacement rate, gender, sector and employment status

In per cent

Note: The breakdown by gender is only provided for single individuals for the Netherlands, the United Kingdom and the United States. For Chile and the United States, the numbers represent the proportion of working-age individuals with a replacement rate below the 66% commonly used benchmark, as there is no country-specific reference replacement rate.

50. In Norway, the United Kingdom and the United States, private sector workers may have more difficulties to reach their country-specific reference replacement rate than public sector workers. In these countries, as already discussed in section 2.2 (Figure 3), private pensions may have a greater importance in the total pension income at retirement for public sector workers than for private sector workers. Occupational DB pensions are indeed mandatory for public sector workers in Norway, while in the private sector, workers may be covered by an equivalently generous DB pension plan or by a DC pension plan with a minimum 2% contribution rate. In the United Kingdom and the United States, DB plans are also more widespread among public sector workers. In these three countries, DB pensions may provide a better complement to public pensions, leading to larger replacement rates for public sector workers.

51. When the self-employed do not have access to specific occupational private pension plans to complement their public pension, they may be more at risk than employees of failing to reach a reference replacement rate. This is the case in the United Kingdom and the United States, where the self-employed can only use personal pension plans to complement their state pension. In Chile, participation in the DC pension system is voluntary for the self-employed. Conversely, in France, the self-employed may make a greater use of private pensions to complement their public pension benefits and enjoy higher replacement rates at retirement than employees. This is facilitated by the fact that they have their own occupational private pension arrangement.

52. Finally, younger generations may be more at risk of failing to reach their country-specific reference replacement rate in Chile, France, the Netherlands, Norway and the United States, and less at risk in the United Kingdom. In Chile, although younger generations may contribute more years into the system
than their elders, they may not enjoy the same performance on their DC account. While the system has delivered so far an average real rate of return of 9% according to the Chilean Superintendence of Pensions, the intermediate scenario assumes that it will only be 3.5% going forward. Younger generations may therefore spend more time in a less performing system, leading to lower pensions and lower replacement rates. In France, private pensions do not seem to grow enough to offset the impact of the indexation rules in the public pension system and the increase in the length of the contribution period needed to get a full rate state pension. Younger generations in the United States may also suffer lower replacement rates at retirement than their elders due to the increase of the official age of retirement to 67 and the shift of occupational pension provision from DB to DC plans.

**Figure 8. Proportion of working-age individuals with a replacement rate below each country-specific reference replacement rate, by age group**

Note: For Chile and the United States, the numbers represent the proportion of working-age individuals with a replacement rate below the 66% commonly used benchmark, as there is no country-specific reference replacement rate.

53. In the Netherlands, there are four main factors that may explain the potential deterioration of replacement rates for future generations. First, the maximum tax favoured pension accrual rate in occupational DB plans has decreased from 2.25% in 2013 to 1.875% in 2015. Second, most DB schemes shifted from final-pay DB plans to career-average DB plans after 2003. Third, the study only assumes a 50% price indexation of accrued rights in the intermediate scenario, due to the current difficult financial position of Dutch DB pension funds. Finally, from 2014, all occupational pension plans have to assume a standard pension age of 67. This means that people retiring at 65 will get reduced benefits.

54. In Norway, younger individuals may also be more likely to have lower replacement rates than their elders, for two main reasons: (i) they tend to be in industries less often covered by collective agreements and DB pensions, and (ii) they have to bear the cost of longer life expectancies. Regarding the second point, future improvements in life expectancy have an impact on both public and DC pensions. Public pensions are adjusted downwards as the number of years expected to be spent in retirement increases. DC pensions are impacted through the conversion of assets accumulated at retirement into a life annuity (a higher life expectancy at retirement will lower the level of the annuity payment). If younger

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24. The model predicts higher densities of contributions in the future.
generations do not delay retirement to compensate for longer life expectancy, they will receive lower benefits than older generations and fall in the income distribution.

55. In the United Kingdom, several factors may play in different directions to explain the trend of replacement rates across age groups. First, cohort-specific effects (higher earnings and higher participation rates in the labour market for younger generations) may translate into higher replacement rates at retirement for younger generations (and therefore a lower risk of failing to reach the reference replacement rate). Second, private pensions may have a greater importance in the total pension income at retirement for younger generations, as already shown in section 2.2 (Figure 4). The complementary role of private pensions may therefore be reinforced for younger generations and help increasing or maintaining replacement rates. These effects seem to dominate other factors that may deteriorate replacement rates for future generations, especially from public pension plans. In the United Kingdom, the increase in the State Pension age may translate into lower state pension benefits for younger generations if they do not delay retirement and continue to leave the labour market as people currently do.

2.6. Potential impact of housing wealth on retirement income

56. This sub-section looks at the potential complementary role of housing wealth in the retirement readiness of working-age individuals. It uses data for the Netherlands, the United Kingdom and the United States to illustrate this potential impact. In particular, it looks at the impact of adding to the previously calculated pension income the imputed rent, corresponding to the in-kind income of homeowners living in a home rent free, and the annuity payments obtained from the sale of the house at retirement.

57. In the three countries, housing wealth may be an important complement to pension income to finance retirement years for many people. To start with, a large proportion (83% in the United Kingdom, 80% in the United States and 65% in the Netherlands) of working-age individuals may own (outright, partially or with the help of a mortgage) their accommodation. Adding housing wealth to the pension income at retirement may therefore have an important impact on the retirement readiness of many individuals. When adding the imputed rent, the median replacement rate increases in the three countries, by 6 percentage points in the United States, 15 percentage points in the Netherlands and 17 percentage points in the United Kingdom (see Table 6). At the same time, the proportion of individuals at risk of failing to maintain their standard of living at retirement drops to 51%, 20% and 15% respectively. The imputed rent may represent 10% of the total retirement income in the United States, 17% in the Netherlands and 19% in the United Kingdom.
Table 6. Potential impact of housing wealth on retirement income in the Netherlands, the United Kingdom and the United States

In per cent

<table>
<thead>
<tr>
<th>Country</th>
<th>Median final earnings replacement rate (FERR)</th>
<th>Proportion of individuals with FERR below 66%</th>
<th>Share of imputed rent in total retirement income</th>
<th>Share of housing wealth in total retirement income</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Netherlands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pension income</td>
<td>71</td>
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<td>0</td>
</tr>
<tr>
<td>Pension income + imputed rent</td>
<td>86</td>
<td>20</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Pension income + imputed rent + annuity</td>
<td>102</td>
<td>11</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
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<tr>
<td>Pension income</td>
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<td>0</td>
</tr>
<tr>
<td>Pension income + imputed rent</td>
<td>96</td>
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<td>19</td>
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</tr>
<tr>
<td>Pension income + imputed rent + annuity</td>
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<td>7</td>
<td>13</td>
<td>23</td>
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<td><strong>United States</strong></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Pension income</td>
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<td>59</td>
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<tr>
<td>Pension income + imputed rent</td>
<td>65</td>
<td>51</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Pension income + imputed rent + annuity</td>
<td>76</td>
<td>37</td>
<td>7</td>
<td>14</td>
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</tbody>
</table>

58. When assuming that people sell their house at retirement and buy an annuity with the sell proceeds to finance retirement, even less people would be at risk of not maintaining their standard of living at retirement (37% in the United States, 11% in the Netherlands and 7% in the United Kingdom). The annuity payments would represent 14% of the total retirement income in both the Netherlands and the United States, and nearly one fourth in the United Kingdom.

2.7. Summary: Identification of population subgroups relying less on private pensions at retirement and those at greatest risk of not being prepared for retirement

59. This sub-section summarises the results shown above with the identification of population subgroups relying less on private pensions at retirement and those at greatest risk of not being prepared for retirement for each country. Table 7 uses a colour coding with red representing situations in which private pensions may represent less than 10% of the total pension income at retirement or when more than half of the working-age population may not be prepared for retirement for each of the three selected indicators (proportion of people retiring with a pension income below the poverty line, using country-specific definitions; purchasing power comparison with current retirees; replacement rate benchmark attainment, using country-specific references when available – otherwise using the 66% benchmark). Green cells represent situations in which private pensions may represent the main source of pension income at retirement or when less than 10% of the working-age population may not be prepared for retirement. Other nuances represent intermediate situations. The results are shown for the intermediate scenario.
Table 7. Summary table, intermediate scenario

<table>
<thead>
<tr>
<th>Importance of private pensions in the total pension income</th>
<th>Proportion below poverty line (country-specific definition)</th>
<th>Proportion worse-off than current retirees</th>
<th>Proportion below country-specific replacement rate benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILE</td>
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<td>Low income</td>
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<tr>
<td>Medium income</td>
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### Table 7. Summary table, intermediate scenario (continued)

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<th>Category</th>
<th>Importance of private pensions in the total pension income</th>
<th>Proportion below poverty line (country-specific definition)</th>
<th>Proportion worse-off than current retirees</th>
<th>Proportion below country-specific replacement rate benchmark</th>
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</table>
60. In Chile, private pensions may represent the main source of pension income at retirement for all working-age individuals. Public pensions only represent a complementary income that people have to claim. Low-income individuals may be at greatest risk of not being prepared for retirement, as the majority of them may retire with a pension income below the poverty line. This risk is also bigger for younger generations, women, private sector workers and self-employed people as compared to older generations, men, public sector workers and employees. The majority of working-age individuals may retire with a pension income inferior to the one that current retirees enjoy today on average and may also fail to reach a replacement rate benchmark of 66%.

61. In France, private pensions have so far a marginal role in the financing of retirement. They may represent less than 10% of the total pension income at retirement, except for the self-employed (13%). Despite higher replacement rates, low-income individuals may be at greatest risk of not being prepared for retirement, as the majority of them may retire with a pension income below the poverty line. Older generations, women, private sector workers and the self-employed may have a lower purchasing power at retirement than other socio-economic subgroups, as demonstrated by the proportion of individuals with an income below current retirees’ average pension income. There is room to increase the role of private pensions in France to help all individuals reaching a benchmark replacement rate of 66% of final earnings.

62. In the Netherlands, private pensions may represent a significant part of the total pension income at retirement. They may even represent the main source of pension income for high-income individuals. Very few working-age individuals may retire with a pension income below the poverty line, but most of them may fail to reach the benchmark replacement rate defined in the Dutch pension system (70% of career-average earnings). This may be even less likely for medium and high-income individuals, younger generations and men. Private sector workers may have a lower purchasing power at retirement than public sector workers.

63. Despite their mandatory nature, private pensions may represent less than 30% of the total pension income at retirement in Norway. This is because a large share of the population contributes very little in occupational DC plans. Private pensions may be less important for low-income individuals and private sector workers as compared to other socio-economic subgroups. None of the working-age individuals may retire with a pension income below the poverty line, but most of them may fail to reach the implicit replacement rate commonly accepted for the Norwegian pension system (66% of final earnings).

64. In the United Kingdom, the importance of private pensions in the total pension income may increase with income and may even exceed 50% for high-income individuals. Despite higher replacement rates, low-income individuals may be at greatest risk of not being prepared for retirement, as just under half of them may retire with a pension income below the poverty line. High-income individuals, single men and the self-employed may be more at risk of failing to reach the benchmark replacement rates set up by the Pensions Commission in 2004. Low-income individuals, older generations, single individuals, private sector workers and the self-employed may have a lower purchasing power at retirement than other socio-economic subgroups.

65. In the United States, the importance of private pensions in the total pension income may increase with income and may even exceed 50% for high-income individuals. Despite higher replacement rates, low-income individuals may be at greatest risk of not being prepared for retirement, as one third of them may retire with a pension income below the poverty line, using the US-specific poverty threshold. Most working-age Americans may fail to reach a benchmark replacement rate of 66% of final earnings, although this is not a benchmark commonly accepted in the United States. Low-income individuals and single individuals may have a lower purchasing power at retirement than other socio-economic subgroups.
2.8. Scenario analysis

66. This subsection looks at the impact of different economic conditions and behaviours on the role that private pensions can play in the retirement readiness of the working-age population. The different economic conditions refer to changes in inflation, aggregate productivity, rate of return on investments and discount rate. The different behaviours refer to the age of exit from the labour market. Summary tables for each scenario can be found in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1 for each country.

67. Delaying retirement and living in a world with higher rates of return may increase the importance of DC pension plans in the total pension income in all the countries studied. If people delay their retirement and enjoy high performance of their DC accounts, their DC pension may represent a larger share of their total pension income at retirement. Everything else equal, delaying retirement has indeed a double positive impact on DC pensions: (i) people have more time to accumulate assets and (ii) the number of years in retirement that these assets need to finance is lower. Conversely, if people retire early and suffer low returns on their investments during their career, the importance of DC pensions in their total pension income may shrink.

68. The importance of DB pensions in the total pension income at retirement is sensitive to the assumptions in the Netherlands and in Norway. In the Netherlands, the importance of DB pensions may fall to 27% of the total pension income if the economic conditions do not allow pension funds to index accrued pension rights to inflation in DB plans (Table A4.2 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1). On the contrary, when accrued pension rights enjoy a full price indexation, DB pensions may represent up to 44% of the total pension income on average (Table A4.4 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1). In Norway, DB pensions may have a greater importance in the total pension income when people retire early (at 62 if they are eligible). This is due to the structure of the early retirement scheme for public sector workers. This scheme, which is part of the occupational DB arrangement, pays the full pension benefit between the age of 62 and 67, while state pension only starts paying benefits from the age of 67. Table A5.2 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1 thus shows that, at retirement, the whole pension income of public sector workers is paid by the early DB retirement scheme. For private sector workers, the importance of DB pensions in the total pension income may not change when retiring early.

69. Economic conditions and different behaviours in terms of labour market exit may have an impact on pension income levels and on the ability to maintain one’s standard of living at retirement. Delaying retirement and living in a wealthier society (higher productivity and higher rates of return on investments in particular) lifts everyone up and therefore pushes down the proportion of working-age individuals at risk of retiring with a pension income below the poverty line or of having a pension income level at retirement inferior to the one current retirees receive. Similarly, it pushes down the proportion of working-age individuals at risk of failing to maintain the same standard of living at retirement.

70. Not fully indexing accrued DB pension rights to inflation in the Netherlands may create inequalities across generations with regards to DB pensions. Table A4.4 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1 shows that the importance of DB pensions in the total pension income may be the same across generations (around 43-44%) when DB pension rights in occupational plans are fully indexed to prices. The study also shows that, under these conditions, replacement rates from DB plans may be equal for all generations (around 36-37%). However, when DB pension rights are only partially indexed to inflation or not indexed at all, the importance of DB pensions in the total pension income and the replacement rates from DB plans may start to fall for younger generations. For example, if future accrued rights in occupational pension plans are not indexed to inflation, DB pensions may only represent 24% of the total pension income for people aged 35 to 39, as
opposed to 34% for those aged 60 to 64. Replacement rates may also fall, from 22% for those aged 60 to 64 to 11% for the younger age group. In addition, the risk of being worse-off than current retirees also increases for younger generations under such conditions.

71. Delaying retirement from 67 to 70 in Norway may allow younger individuals to fully or partially compensate for the loss in total pension income at retirement as compared to their elders due to the life expectancy risk transfer in the public pension system. The study shows that people born in 1975 but retiring at 70 instead of 67 may reach an average replacement rate (67%) in par with the one that people born in 1953 and retiring at 67 may get (70%). People born in 1953 are indeed in the last age-group for which public pensions are calculated with the old rules, with a very mild transfer of the life expectancy risk to individuals. In contrast, younger individuals, born in 1965 or in 1975, fully support the life expectancy risk under the new pension system. They have to delay retirement to compensate for this risk transfer.

72. Younger generations in Chile and France may still be more likely to retire with a pension income below the poverty line and be at greater risk of failing to maintain their standard of living at retirement than their elders, even under more favourable economic conditions. For France, two of the three factors already identified earlier in this report can still explain why younger generations may be worse-off on those two indicators in the optimistic scenario: (i) past salaries are revalued in line with prices for the calculation of public pensions and (ii) the point value used to calculate benefits from complementary public pension schemes is revalued below inflation. As the optimistic scenario assumes an aggregate productivity growth of 2%, the gap between final wages and public pension benefits (from the basic scheme and from complementary schemes) widens and the further away into the future people retire, the less their pension will be worth. For Chile, a rate of return on investment of 6.1%, as assumed in the optimistic scenario, may not be sufficient for younger generations to catch-up with the average 9% return that older generations have enjoyed since the start of the system. They may therefore still lie behind their elders in terms of replacement rates.

73. In contrast, younger generations are the ones who may benefit the most of better economic conditions and of delaying retirement up to the official age in the United Kingdom and the United States. Indeed, Table A6.4 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1 shows that younger generations may have a lower risk of failing to maintain their standard of living at retirement than older generations under the optimistic scenario in the United Kingdom. This actually reflects higher replacement rates for younger people. These higher replacement rates are the result of stronger rates of returns for DC pension plans, which benefit more the younger generations as they may be more likely to join an occupational DC plan during their career through the automatic enrolment process. In addition, if people delay their retirement to leave the labour market at their State Pension age, this may also benefit younger generations the most. For example, if a man born in 1969 retires at his State Pension age, rather than at 65 as is currently observed in the United Kingdom, he will contribute two more years (from 65 to 67) in the pension system, in particular in the additional State Pension scheme (S2P). As 65 is already the State Pension age for men born before 1953, they do not have to change their retirement behaviour to leave the labour market at their State Pension age and do not get therefore additional rights in the public pension system under the optimistic scenario. For the United States, Table A7.4 in the annex contained in the document DAF/AS/PEN/WD(2014)6/ADD1 shows that younger generations may have a significantly lower risk of being worse-off than current retirees compared to their elders in the optimistic scenario. In this scenario, people can receive a full state pension as they all retire at their official age. In addition, younger generations can better enjoy a high performance on pension assets as they have more time to contribute in DC pension plans. This may not be enough however to reverse the trends across age groups for the proportion of people retiring with a pension income below the poverty line and for the proportion of replacement rates.

25. Assuming an aggregate productivity growth of 2.7% in the optimistic scenario does not change the trends observed in the optimistic scenario with an aggregate productivity growth of 2%.
people with a replacement rate below a certain reference (older generations may still enjoy higher pension benefits and higher replacement rates than younger generations in the optimistic scenario due to DB pension plans still offering much higher pension benefits than DC plans).

3. Policy recommendations on how to strengthen the role of private pensions in retirement financing

The OECD argues that it is important to diversify the sources to finance retirement. In this context, the study shows that several OECD countries have recently reformed their pension systems to increase the role of private pensions. For example, Norway and the United Kingdom have decided to increase coverage in private pension plans as a way of diversifying the sources of pension income and increasing the chances of reaching a certain target retirement income. Different policies can however be implemented to increase private pension coverage.

OECD countries have implemented a range of policies to increase coverage in private pensions. These include compulsory and automatic enrolment, providing financial incentives and facilitating the access to private pension arrangements. The countries covered by the report provide illustrations for these different policy options. Private pensions are mandatory in Chile (for employees), the Netherlands and Norway. The United Kingdom has introduced automatic enrolment into occupational pension plans in 2012. Finally, France has a specific private pension arrangement to help self-employed people and farmers to make personal retirement savings.

Making enrolment into private pensions compulsory is ultimately the simplest, less costly and most effective policy in achieving high and uniformly distributed levels of coverage (OECD Pensions Outlook 2012). In OECD countries, the difference in coverage rates between countries with mandatory and voluntary private pension systems is as much as 30 percentage points. The main limit to compulsory enrolment is formal sector employment. It is very hard to get workers outside the formal economy (for example most self-employed individuals in Chile) and economically inactive individuals to contribute to any form of contributory pension arrangement. Automatic enrolment has gained popularity in recent years as an alternative to compulsory enrolment. While it is recognised to have a positive impact on coverage, it does not guarantee a high level of coverage and its success depends on the design and the interaction with incentives in the system to ensure that people will not opt out in large numbers.

While achieving high participation rates in private pensions is a necessary condition to ensure an important role of private pensions in the financing of retirement, it is not sufficient. It should be associated with long contribution periods, high contribution levels and good performance of pension plan portfolios. Regarding the contribution level, the example of Norway is instructive. Despite the mandatory nature of occupational pension plans, occupational DC pensions may only represent 3% of the total pension income at retirement. One reason hinges on the fact that the system is not mature yet, as occupational pension plans only became mandatory in 2006. But even for younger generations, DC pensions may only represent 4% of the total pension income. This is due to low contribution rates. As much as 58% of private sector workers may only have access to plans in which the employer contributes at the minimum 2% rate. Such a low contribution rate does not allow individuals to build large pension pots at retirement. It may even not

26. As developed in the OECD Pensions Outlook 2012, there are other policies to increase coverage in private pensions, such as developing financial education programmes, simplifying the steps and choices that must be taken for joining a plan, and allowing part of the assets accumulated to be withdrawn before retirement under exceptional circumstances.

27. The Dutch private pension system is actually considered as “quasi-mandatory” as participation in an occupational pension plan becomes mandatory if the sector’s employers request the Ministry of Social Affairs and Employment to declare membership obligatory, and the employer organisations making the request represent at least 60% of employees in the sector.
be sufficient to offset the loss in public pensions for younger generations due to the life expectancy risk transfer.

78. Lengthening the contribution period, in particular by postponing retirement, leads to higher private pension benefits, especially in DC pension plans. Postponing retirement simultaneously increases assets accumulated to finance retirement and reduces the retirement period that those assets need to finance. The study shows that, for all the countries covered by this report, the importance of DC pensions in the total pension income at retirement increases when moving to a more favourable scenario. This is mostly due to the combined effects of a delayed retirement and a higher performance on pension assets.

79. Private pension performance alone is also critical to ensure adequate benefits. Chile is a good illustration of the importance of investment returns on the pension income delivered by DC pension plans. Rates of return in Chile have averaged close to 9% since the start of the DC system. The rate of return assumed in the optimistic scenario of 6.1% is more in line with the actual returns observed in Chile today. However, as Chile catches-up economically with developed economies, the rate of return should converge to the ones observed in these economies. If that happens, younger generations may be worse-off than their elders, even if they may contribute for longer periods. A potential solution is to combine higher contribution rates and longer contribution periods.

80. Private pensions should be targeted to people that need them most. Self-employed individuals for example may be of greater need than employees to have access to private pension arrangements. In many countries, self-employed individuals are excluded fully or partially from the mandatory pension system. For example, in the Netherlands, only employees can build rights into the occupational pension system. In the United Kingdom, the self-employed cannot build additional State Pension rights (SERPS/S2P). In France, they do not contribute into complementary public pension plans (AGRIC/ARRCO). The study shows however that, when they have access to specific private pension arrangements like in France, self-employed individuals may improve their situation at retirement, although this may not guarantee that they will enjoy the same purchasing power than employees.

81. A better alignment between public and private sector pensions could be achieved to increase fairness between workers, even in the private pension system. In some countries (e.g. France, Germany), the rules to calculate PAYG pension benefits differ between the public and private sectors, usually with a more generous formula for public sector workers. Even when the rules are the same in the PAYG pension system, public sector workers tend to be more often covered by private pensions or to have more favourable arrangements than private sector workers. For example, in Norway, all public sector workers are covered by an occupational DB plan, while in the private sector, there is a mix of occupational plans offered to them, ranging from similarly generous DB plans to DC plans in which the employer only contributes at the 2% minimum rate. In the United Kingdom, all public sector occupational pension schemes are DB, and all DC occupational pension schemes are in the private sector. This situation could be seen as unfair by the general public, given that DB schemes are generally regarded as a better deal for members due to the pension promise the employer guarantees, while under DC schemes, risk is transferred to workers. The study also shows that, in the countries covered by the report, public sector workers may be better-off at retirement than private sector workers, in most dimensions of retirement readiness. There is therefore room to reform pension systems in certain OECD countries to allow all workers having the same chance to have an adequate retirement income.

4. Conclusions

82. There are several key policy questions that need to be addressed to make sure that appropriate policies are implemented to ensure future retirees’ wellbeing. Are people saving enough for retirement? Are private pensions fulfilling their complementary role in providing for retirement? Should policy makers
introduce measures to increase retirement savings or to postpone retirement? Should these measures be targeted to specific population subgroups? To answer those questions, this report has assessed the role of private pensions in the retirement readiness of working-age individuals in six OECD countries (Chile, France, the Netherlands, Norway, the United Kingdom and the United States). Different indicators have been used to do this assessment from the angle of different policy questions. The main results are the following.

83. The importance of private pensions in the total pension income at retirement depends on several factors, including the mandatory or voluntary nature of individuals’ enrolment into private pension plans, the incentives to enrol in a voluntary plan, the maturity of the private pension system, the level of contributions, the age of retirement and the economic environment. Private pensions have therefore a greater importance in the financing of retirement when high participation rates are associated with long contribution periods, high contribution levels and good economic conditions. When a new private pension system is introduced, the study shows that it takes time to have a significant impact on individuals’ pension income, as only the younger generations may have the time to build large enough pension pots at retirement. Lengthening the contribution period, in particular by postponing retirement, leads to higher private pension benefits, especially in DC pension plans. Postponing retirement simultaneously increases assets accumulated to finance retirement and reduces the retirement period that those assets need to finance.

84. Differences in the role of social assistance may explain some of the differences observed in the proportion of people at risk of retiring with a pension income below the poverty line across the countries covered by this report. In Chile, the Netherlands and Norway for example, the role of social assistance is very different from what is observed in other countries. In these three countries, social assistance protects fully pensioners from poverty by providing them with a minimum income at or above the poverty threshold. In Chile however, many people may not claim these social assistance benefits and find themselves in a difficult financial situation at retirement. In France, the United Kingdom and the United States, social assistance only covers necessary living expenses.

85. In all the countries studied, the proportion of people that may retire with a pension income below the poverty line is higher for people on low income, women, private sector workers and self-employed people. In France, younger generations may be more likely to retire with a pension income below a relative poverty threshold than their elders due to reforms in the public pension system leading to benefit cuts. In the United States also, younger generations may be at greater risk of failing to reach a pension income at least equal to the poverty line, especially when the poverty line is defined using a relative measure. This may be due to the rise in the official age of retirement and the shift from occupational DB plans to occupational DC plans.

86. Depending on the country, between 28% and 59% of working-age individuals may have a pension income at retirement lower than what current retirees, who left the labour market recently, have on average. Trends are similar across socio-economic subgroups in the five countries with available information. In Chile, France, the Netherlands, the United Kingdom and the United States, subgroups of the population that are the most likely to have a pension income below the one that recent retirees currently receive are low-income individuals, older generations (except for Chile), women, private sector workers and self-employed people. This reflects a lower purchasing power at retirement for these individuals as compared to other socio-economic groups.

87. Using country-specific reference replacement rates is more appropriate to compare how well working-age individuals may maintain their standard of living at retirement across countries with different pension systems. Medium and high-income individuals may be more likely than low-income individuals to have a replacement rate at retirement below their country-specific reference replacement rate, except in
Chile where the pension system is less progressive. Men may be more at risk than women of failing to reach a reference replacement rate. In Norway and the United Kingdom, private sector workers may have more difficulties to reach their country-specific reference replacement rate than public sector workers. When the self-employed do not have access to specific occupational private pension plans to complement public pensions, they may be more at risk than employees of failing to reach a reference replacement rate. Finally, younger generations may be more at risk of failing to reach their country-specific reference replacement rate than their elders in Chile (due to lower rates of return on pension assets), France, the Netherlands and Norway (due to reforms leading to benefit cuts), and less at risk in the United Kingdom (due to cohort-specific effects).

88. Finally, the study shows that housing wealth may have a large impact on retirement income. However, it is not clear whether people will actually use this wealth to finance retirement, as other incentives may push people not to cash their housing wealth (e.g. to leave the house as a bequest).