

## Pensions for Public-Sector Employees: Lessons from OECD Countries' Experience

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## Abstract

In 27 out of 34 OECD member countries, there is institutionally separate retirement-income provision for some or all public-sector workers. But the scope of these pension schemes varies significantly: from a modest top-up to the national pension arrangements (covering private-sector workers as well) to entirely independent retirement-income regimes. Average expenditure on these schemes amounts to about 1.5 percent of GDP, or nearly a quarter of total public pension spending.

Public-sector pension reform is an issue of great political importance in many countries. Central governments' workforces are ageing rapidly in all but four of the 26 countries for which data are available. One in three of central-government employees were aged 50 and over in 2009, compared with 22 percent in 1995. This rapid ageing is pushing up the cost of pension schemes at a time when many OECD countries are embarking on fiscal consolidation.

This paper examines the arguments and the options for reforming public-sector pension schemes from an international viewpoint. It assesses five different policies to reduce expenditures or increase contribution revenues, showing how these can have very different effects in a public-sector scheme than with national retirement-income arrangements.

**JEL Classification:** H55, J14, J26, J32

**Key words:** pensions, retirement, public-sector employees

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## **Pensions for Public-sector Employees: Lessons from OECD Countries' Experience**

The pace of reform of pensions for public-sector workers has quickened in recent years. This has followed a period during which changes in these retirement-income arrangements seemed, in many countries, to lag behind wider pension reforms. There are two main drivers of recent reforms, the first of which is cost. The aftermath of the financial and economic crisis has been a rapid rise in budget deficits in most OECD countries. Many of them are now embarking on fiscal consolidation, with pension expenditure coming under increasing scrutiny. The immediate economic shock has both highlighted and exacerbated the long-term pressure on pension costs arising from the phenomenon of population ageing. Pension schemes for public-sector workers have a somewhat different demographic profile from the population as a whole; the ageing trend is, generally, more pronounced.

The second driver of reform is comparability of retirement-income provision with the private sector. France aimed to harmonise pension arrangements between sectors, before undertaking a wider pension reform affecting private- and public-sector workers alike. In the United Kingdom, there has been much debate about pension entitlements of public-sector workers since most private-sector workers have seen final-salary, defined-benefit schemes (similar to those in the public sector) replaced by less generous defined-contribution plans, which also expose their members directly to investment risk.

This paper begins with an overview of the institutional arrangements for providing retirement incomes for public-sector employees. In particular, it looks at the degree to which there are separate programmes for the public sector or a single system that covers both public and private sectors. In what follows, the term “national” pension scheme will be used to describe

pension provision for private-sector workers, which may also provide some or all of the retirement incomes of public-sector workers.

Section 2 provides cross-country evidence on the variation in the role of government employment in the wider labour market, and on how this has changed over time. Section 3 examines the demographic profile of central-government employment. It also compares the trends in ageing between central government and society at large. The finances of public-sector schemes are explored in section 4, which presents data on the level of government spending on these programmes.

Section 5 then turns to reform options designed to improve the financial position of public-sector retirement-income provision. Microeconomic issues, particularly the portability of pension rights for people moving between public and private sectors, are addressed in Section 6. The final section sets out the main policy implications of the findings.

## **1. Institutional arrangements**

The organisation of retirement-income provision for public-sector workers differs significantly between the 34 OECD countries. This is unsurprising: there are also major cross-country differences in the architecture of pension systems for private-sector workers, as documented in *Pensions at a Glance*. Table 1 summarises the pension position of public-sector employees.

The simplest arrangements are at the left- and right-hand ends of the spectrum in Table 1. At the left are seven countries where public-sector workers have exactly the same pension arrangements as their private-sector counterparts. These are all former socialist countries of central and eastern Europe. History seems to matter: the private sector was a minority of employment before the economic transition. So, separate pension arrangements between public and private sectors did not make sense. There were, however, differences in the parameters and rules applying to different groups of workers in some cases that persisted

after the transition period, most notably in Poland. But most of these have now been eliminated.

At the other end of the spectrum, shown across Table 1, lie nine countries in which there are entirely separate retirement-income arrangements for the public and private sectors. Here, public-sector workers are not covered by the national pension scheme. Moreover, the parameters and rules that determine benefit levels and eligibility are different from the national plan. Either pension benefits differ for people with the same earnings and career profiles, indexation procedures for pensions in payment vary or access to pensions is possible at different ages than in the national scheme, or some combination of these. In some cases—such as France and Greece—pension provision for the public sector is highly fragmented at the moment, with numerous different schemes covering different groups of workers. In others, there is one separate scheme for the public sector or many public employees are covered by the national arrangements. Even in these countries, some low-paid, public-sector employees might be eligible for the safety-net benefits that are part of national retirement-income provision, such as means-tested benefits or non-contributory minimum pensions. This, of course, also applies to countries elsewhere in Table 1.

In the second column from the left of Table 1, there are five countries in which there are again separate schemes for the public and private sectors. Unlike the countries in the right-hand column, however, benefit levels, indexation policies and pension eligibility ages are very similar. In Finland and Iceland, private-sector workers must be covered by occupational pension schemes which have the same or very similar parameters and rules to the schemes for the public sector. In Denmark and the Netherlands, nearly all the private-sector workforce is covered by occupational plans, but these are not compulsory. Instead, this is achieved through industrial-relations agreements and so the OECD calls them “quasi-mandatory” in its *Pensions at a Glance* reports. In both cases, there is variation in parameters and rules between different schemes. However, public-sector arrangements are broadly similar to the typical plan for private-sector workers. Similarly, the recent conversion of Israel’s public-service scheme from defined-benefit to defined-contribution and the introduction of

mandatory defined-contribution schemes for private-sector workers mean that the two sets of arrangements are fairly closely aligned.

Public-sector workers in the 12 countries in the central column of Table 1 are covered by the same arrangements as their private-sector counterparts. Unlike the countries in the first column, however, there are top-up arrangements to provide additional benefits to the national scheme. These vary significantly. In Italy and Slovenia, for example, the top-up is relatively small (and the national pension scheme provides a replacement rate well above the OECD average). Furthermore, it is not a statutory requirement in Italy (rather a result of industrial-relations agreements) and covers by no means all public-sector workers. In Canada and Ireland, in contrast, the public-sector scheme provides much more substantial benefits on top of relatively modest public benefits. (The replacement rate from national arrangements is much lower than the OECD average for people with earnings at the economy-wide mean.) New Zealand is perhaps unique in the world in having abolished its centralised civil-service pension scheme. Instead, government departments and agencies are free to set up their own arrangements if they wish.

Australia and Switzerland might, arguably, be moved from “integrated with top-up” to the second column. Both have mandatory private pensions for private-sector workers. Australia recently changed its public-service scheme from the defined-benefit to the defined-contribution type, matching the arrangements for the private sector. However, government contributions as an employer are above the statutory minimum, although many private-sector employers offer similar deals. Similarly, many Swiss workers in the private sector receive benefits above the mandatory minimum. However, data for both countries on the proportion of private-sector workers receiving above-statutory benefits are not available. Nevertheless, this proportion is likely to be less than the near-universal coverage of quasi-mandatory schemes in Denmark and the Netherlands.

**Table 1. Public-Sector Workers' Pensions: Institutional Arrangements in OECD Countries**

Fully integrated	Institutionally separate with similar benefits	Fully integrated with top-up arrangements	Partially integrated with top-up scheme	Entirely separate institutions and benefits
Chile	Denmark	Australia	United Kingdom	Austria
Czech Republic	Finland	Canada		Belgium
Estonia	Iceland	Ireland		France
Hungary	Israel	Italy		Germany
Mexico	Netherlands	Japan		Greece
Poland		New Zealand		Korea
Slovak Republic		Norway		Luxembourg
		Slovenia		Portugal
		Spain		Turkey
		Sweden		
		Switzerland		
		United States		

The United States offers an interesting example of the steady integration of groups of workers into the national pension arrangements (known as social security).<sup>2</sup> State and local governments were allowed to enrol their employees in social security; and the military and federal employees not covered by the Civil Service Retirement System were enrolled during the 1950s. From 1983, new civilian employees of the federal government were also covered by social security, the value of the additional defined-benefit element was significantly reduced and a new, defined-contribution scheme, the Thrift Savings Plan (with government contributions as employer and voluntary employee contributions) was added on top.

The United Kingdom has a category of its own. Public-sector employees are covered by the basic pension, part of the national pension arrangements. However, they are not covered by the earnings-related part of the scheme, now known as State Second Pension (S2P). The same is true of some private-sector workers, who have been able to “contract out” of S2P and its predecessor. Provided the employee has a private pension meeting some minimum standards, either the social security contribution rate is reduced or part is transferred into the private-pension account in return for forgoing S2P benefits. Around 35 percent of all employees are contracted out, a figure that includes all participants in public-sector schemes.

<sup>2</sup> See Schreitmüller 1988 for a comprehensive review.

However, this complex mechanism will soon disappear as part of wider pension reform and so the United Kingdom would move into the central column, the category of “fully integrated with top-up”.

The focus of the analysis has to be on the countries with some degree of separation of pension arrangements: all but the left-hand column of Table 1. This limit is applied in sections 4 to 6 below on the retirement-income system. First, however, it is useful to look at the numbers involved: how many people are employed in the public service and what is their demographic profile?

## **2. Size of government**

The role and scope of government varies significantly between countries, even among the more developed nations that are members of the OECD. There are significant differences in, for example, government expenditure and revenues as a percentage of gross domestic product (GDP). However, a significant part of public spending goes on transfer payments and capital investment, and so total expenditure is not an indicator of the size of government that is very relevant for an analysis of public-sector employees’ pension arrangements.

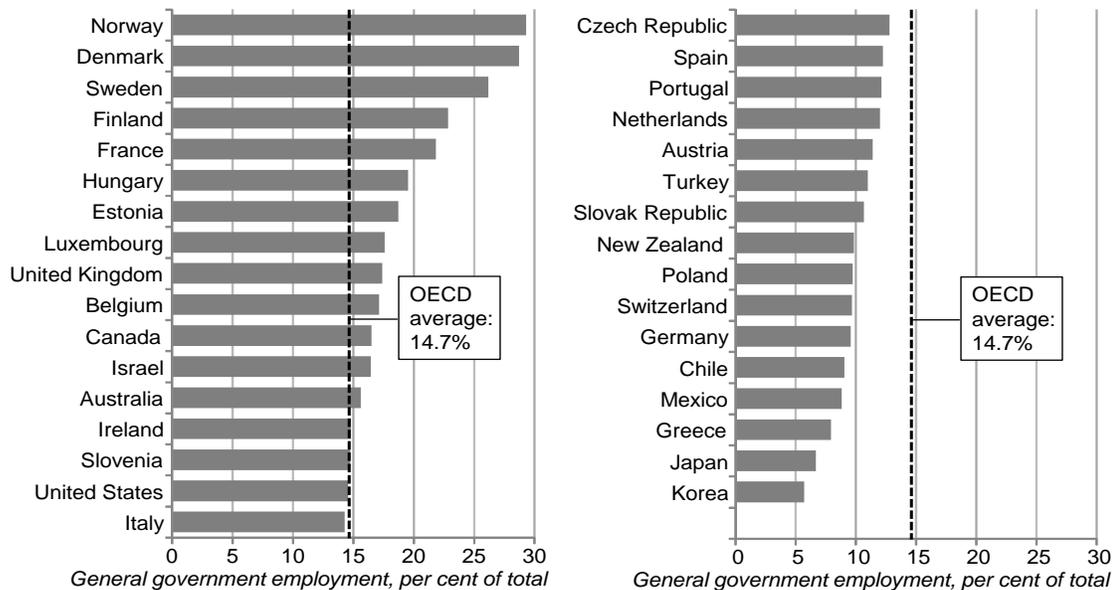
Figure 1 therefore looks at the role of government as an employer. The concept of the public sector used here is “general government”, as defined in the System of National Accounts (SNA). This therefore includes both central (or federal) and sub-central (state, provincial or local) levels of government. But it excludes publicly owned corporations providing goods and services, which in OECD countries can include, among others, the postal service, broadcasting, railways and utilities. The number of employees of general government is shown as a percentage of total employment. Countries are ranked from the highest to lowest share, first down the left-hand panel of the figure and then down the right-hand side.

Government employment, in the 33 countries for which data are available, averages a little less than 15 percent of the total labour force. Four Nordic countries are at the top of the scale, with an average of 27 percent of employees working for government. Other European

countries are spread across the range, with the German and Greek governments employing less than 10 percent of the workforce, compared with more than 20 percent in France. Two East Asian countries are at the bottom of the scale: Japan and Korea, where the government share is 6.7 percent and 5.7 percent, respectively. Ireland, Italy, Slovenia, and the United States are all close to the OECD average.

Some care is needed in interpreting these comparisons. Even though the SNA aims to standardise definitions across countries, there may be differences in classifications at very detailed levels. In some countries, many public-sector workers are employed in public corporations and so are not included in Figure 1. This group of employees averages just 3.6 percent of total employment in the 25 countries for which data are available. It is most significant in Greece (12.8 percent of total employment) and Poland (11.7 percent), which in both cases exceeds general-government employment.<sup>3</sup> Despite these caveats, these data give some indication of the importance of pension arrangements for government workers.

**Figure 1. General-Government Employment as Percentage of the Labour Force, 2008**



Note: Data for Iceland are unavailable.

Source: OECD 2011b, Figure 21.1.

<sup>3</sup> OECD 2011b, Figure 22.2.

A comparison of general government employment over time shows a stable size of the government workforce in the past 15 years or so. Data are available back to 1995 for 18 OECD countries. For this group, the proportion of the workforce employed by general government was exactly the same in 2008 as in 1995: 14.3 percent. There were large increases in the government payroll—of 20 percent or more—in Slovenia, Switzerland, and Turkey and reductions of a similar magnitude in Germany and Mexico.

### **3. Demographic pressures**

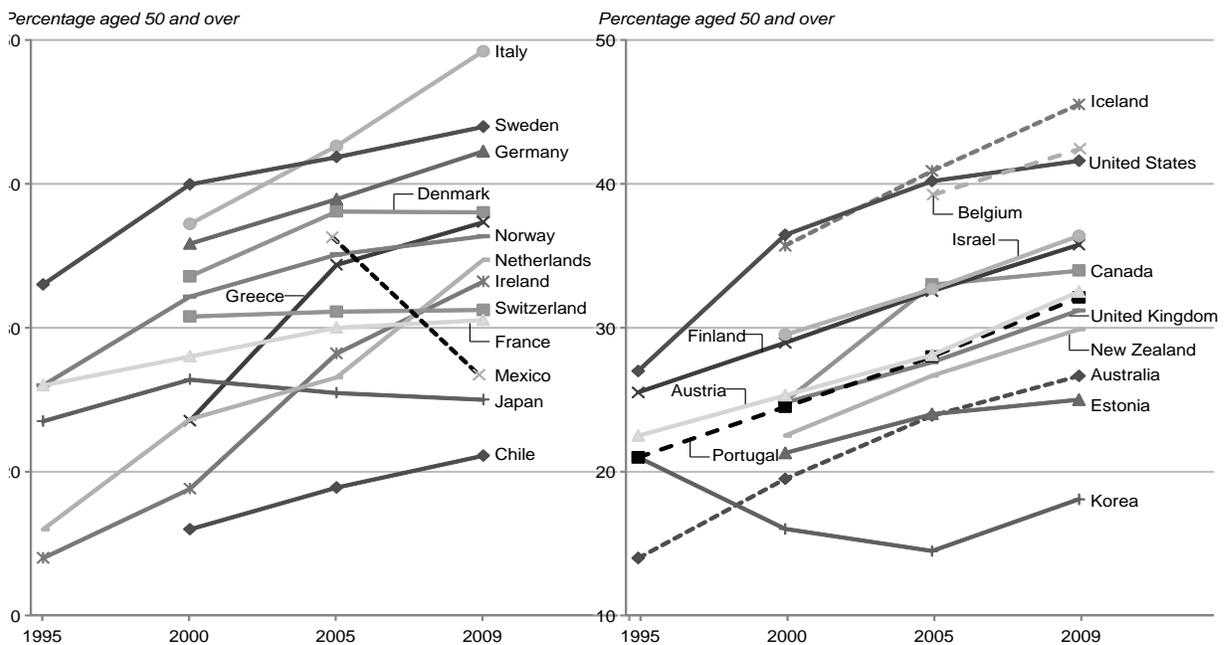
Long-term changes in the size and scope of government have a significant implication. The demographics of public-sector pension schemes—in particular, the relationship between the number of beneficiaries and the number of contributors—are often very different from that of the population as a whole.

Figure 2 shows the extent to which demographic change has affected the central-government workforce over a period of nearly 15 years: from 1995 to 2009. (Data on the age structure of *general-government* employment are not available.) The youngest (demographically speaking) central governments in 2009 were those of Chile, Estonia, Japan and Korea: 25 percent or fewer workers were aged 50 and over. In contrast, more than 40 percent of central-government employees were aged 50 or over in Belgium, Germany, Iceland, Italy, Sweden, and the United States at that time.

Looking at the time-series pattern, the workforces of most central governments have aged (demographically) over the past 15 years. Exceptions are Japan, Korea, and Switzerland, where the proportion of over 50s in the central government was relatively stable. But the most manifest outlier is Mexico, where the share of older workers fell from 36 percent to 27 percent in a period of just four years (2005-09). General-government employment fell from 11.1 percent of the total to 8.8 percent during this period. This decline, as noted previously, is equivalent to a cut of one fifth of the relative size of the public workforce. Taken together, these two developments suggest that the significant reduction in government employment was heavily focused on older workers as it affected the central government.

Of the majority of countries where the proportion of over 50s in the central government workforce has grown over recent years—22 out of the 26 shown—the share of older workers increased by an average of nearly 30 percent. The most rapid ageing of the workforce took place in Greece, Ireland, and the Netherlands. All of these countries had below-average shares of over 50s in the earlier part of the period illustrated in Figure 2.

**Figure 2. Ageing Trends in the Central-Government Workforce: Percentage of Employees Aged 50 and over, 1995-2009**



*Note:* Data for Czech Republic and Turkey are unavailable. Information for Luxembourg, Poland, Slovak Republic, and Spain are only available for a single year and so these countries are not shown. Adjacent years are used in some case (see the sources for details). For Estonia and Hungary, the percentage of government employees aged over 51 years is shown while for Chile, data represent the percentage of government employees aged over 55 years.

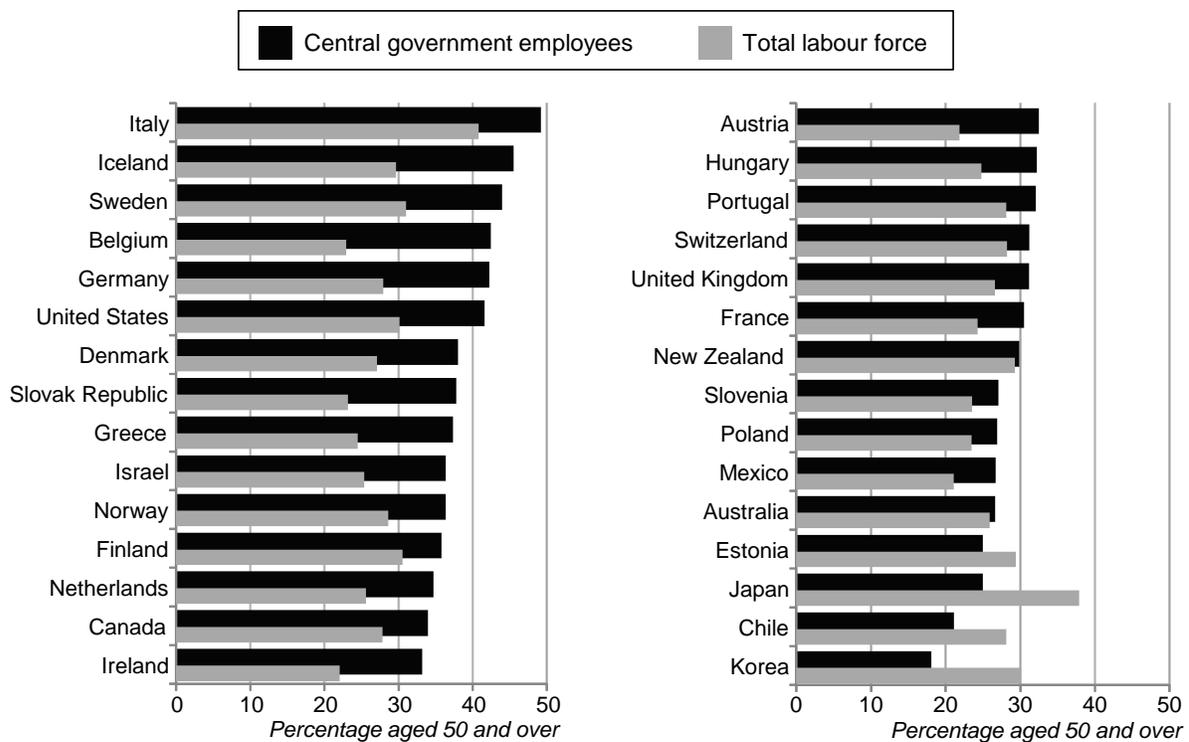
*Source:* OECD 2007b, Figures 1.2 and 1.3; OECD 2011b, Figure 23.1; OECD 2009b, Figure 12.2.

The aggregate demographic situation of OECD countries also varies considerably. Currently, Chile, Ireland, Korea, Mexico, and Turkey are the demographically youngest countries, with an average of seven people of working age (20-64) for every one of pension age (65+). The oldest countries are Germany, Italy and Japan, with fewer than three people of working age

for every one of pension age.<sup>4</sup> To what extent do differences in the age of the central-government workforce reflect demographic variation in the population as a whole?

Figure 3 addresses this question by comparing the percentage of the central-government workforce aged over 50 with the same information for the workforce as a whole. In 26 of the 30 countries for which data are available, the proportion of central government employees aged over 50 is larger than that of the workforce. The exceptions are the four countries at the bottom of the right-hand panel, which also have the smallest share of older workers in central government. Indeed, three of them—Chile, Japan, and Korea—are among the countries with the smallest proportion of employees working in *general* government.

**Figure 3. Labour-Force Demographics: Central/Federal Government and Total Workforce Compared, 2009**



*Note:* Data are not available for the Czech Republic, Luxembourg, Spain, and Turkey. Information for Italy, Japan, and Korea relate to 2008. See also notes to Figure 2 and those in the source.

*Source:* OECD 2011b, Figure 23.2.

<sup>4</sup> Source: the indicator of “Old-age support ratios” in Part II.4 of OECD 2011a.

In the other 26 countries illustrated in Figure 3, the average share of people aged over 50 working for the government is about a third higher than that in the labour force as a whole. The differential is largest—more than one half—in Belgium, Germany, Greece, and Ireland. Only Australia and New Zealand have very similar age structures between central government and the labour force. Overall, there is a positive relationship between the proportion of the labour force and of central government employees aged over 50, but it is a weak and statistically insignificant one.<sup>5</sup>

To conclude the demographic analysis, just over a third of central-government employees were aged 50 and over in 2009 on average in OECD countries. This implies a large “bulge” of retirees to come in the next 10-15 years in most of them. This has broad implications for the human-resources policy of government. Of the ten countries with the highest shares of older central-government employees, half of them—Denmark, Iceland, Israel, Italy, and the Slovak Republic—told an OECD survey that civil-service demographics were *not* explicitly considered in the forward planning of human-resource managers.<sup>6</sup> A sizeable share of government’s expertise will leave its employment for retirement over a relatively short space of time. This trend also has important implications for pension systems, especially in those countries where there are separate or top-up schemes for civil servants.

#### **4. Fiscal costs**

The profound institutional differences between countries’ retirement-income provision for public-sector workers make it very difficult to collect comparable data on the cost of these schemes. Nevertheless, Figure 4 presents the available information extracted from the OECD’ social-expenditure database. Where possible, data on the central government or civil service are separated out. The remainder of expenditure relates to broader parts of the public

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<sup>5</sup> The results of a linear regression (with heteroskedasticity-adjusted standard errors in parentheses) are: percentage aged over 50 in government = 23.73 (10.81) + 0.3569 (0.4167) x percentage aged over 50 in workforce;  $R^2 = 0.0449$ .

<sup>6</sup> Source: OECD 2011b, Figure 16.2. On the wider human-resources issues, see also the nine country cases in OECD 2007b.

sector, including sub-national government, public corporations and so on. The average expenditure, excluding zeroes, is 1.3 percent of GDP for the narrower central government category and 1.5 percent for the broader public-sector grouping.

The five countries at the top of the range spend between 2.8 percent (Finland) and 3.7 percent (Greece) of GDP on pensions for public-sector workers. In each of these cases, pensions for the public sector are provided separately from the national scheme.

In contrast, many of the next countries in the rankings—Australia, Japan, the United Kingdom, and the United States, for example—are countries where the public-sector pension is a top-up to the national scheme. The relatively high expenditures shown in Figure 4 are probably a reflection of the fact that their national pension arrangements pay low benefits relative to most other OECD countries. There is thus more need and demand for top-up benefits than in countries where national pension programmes have higher target replacement rates.

Figure 4's number for expenditure on public-sector pensions for Chile is perhaps surprisingly high. The systemic pension reform of the early 1980s introduced mandatory defined-contribution schemes. Most public- as well as private-sector workers moved into the new programme. Thus, the expenditure indicated here relates principally to the uniformed services—police and military—with some legacy costs of the earlier defined-benefit scheme.

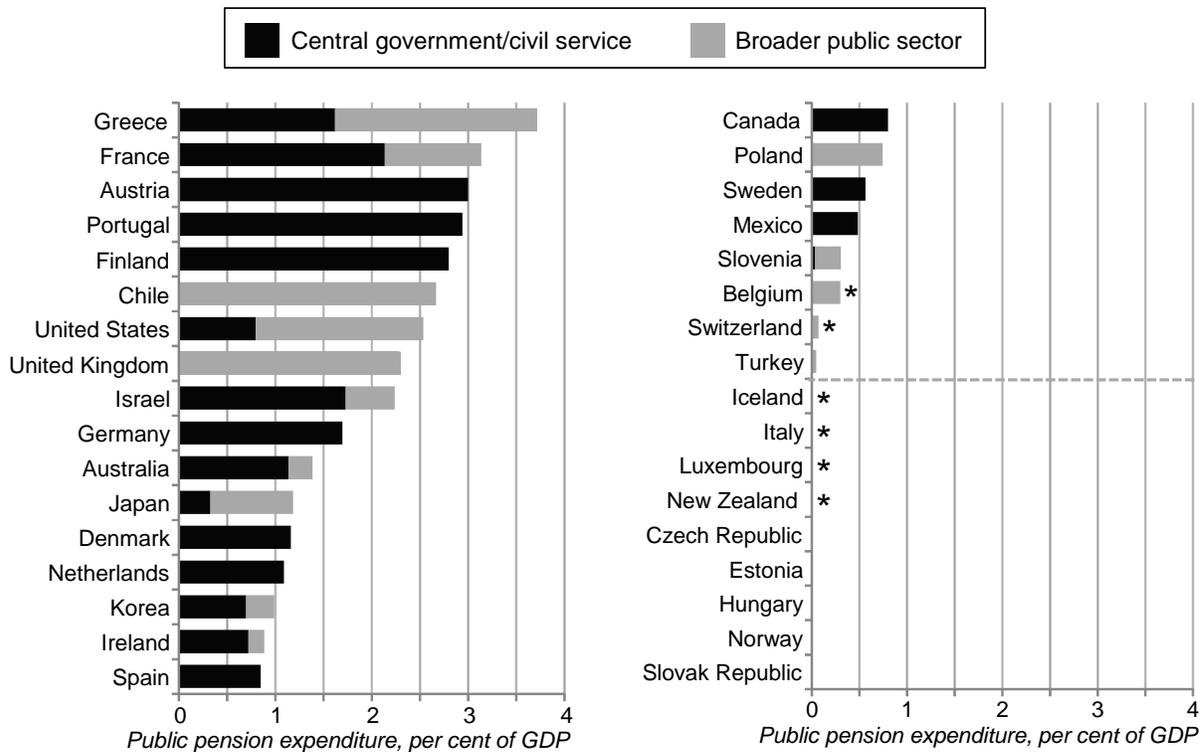
For nine countries, the number for spending on pensions for public-sector workers provided for the OECD social-expenditure database by national authorities is zero, or no data were given. In five of these countries, this is the true figure: there are no separate public-sector schemes. However, the OECD's understanding is that there should be relatively large expenditures for Iceland and Luxembourg and positive, albeit small, ones for Italy and New Zealand.<sup>7</sup> These cases are marked with an asterisk. A similar concern applies to Belgium, where the reported figures include primarily public corporations and a small sector of local government. Again, other sources suggest that there are separate arrangements for central

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<sup>7</sup> In both cases, not all central-government or public-sector employees are members of schemes that top-up national pension provision. In Italy's case, these schemes provide relatively modest benefits.

and regional governments. Swiss occupational pensions—compulsory for both private and public sectors—were discussed previously. The expenditure on these schemes for public-sector workers appears to be reported together with the private sector in the category of “mandatory private schemes” in the database.

**Figure 4. Fiscal Costs of Public-Sector Pensions, 2007**



*Note:* An asterisk (\*) next to the country entry shows that the OECD secretariat believes that there are expenditures missing from the database. Data for Australia, Canada, Chile, Turkey and United States relate to 2008 and for the Netherlands to 2005.

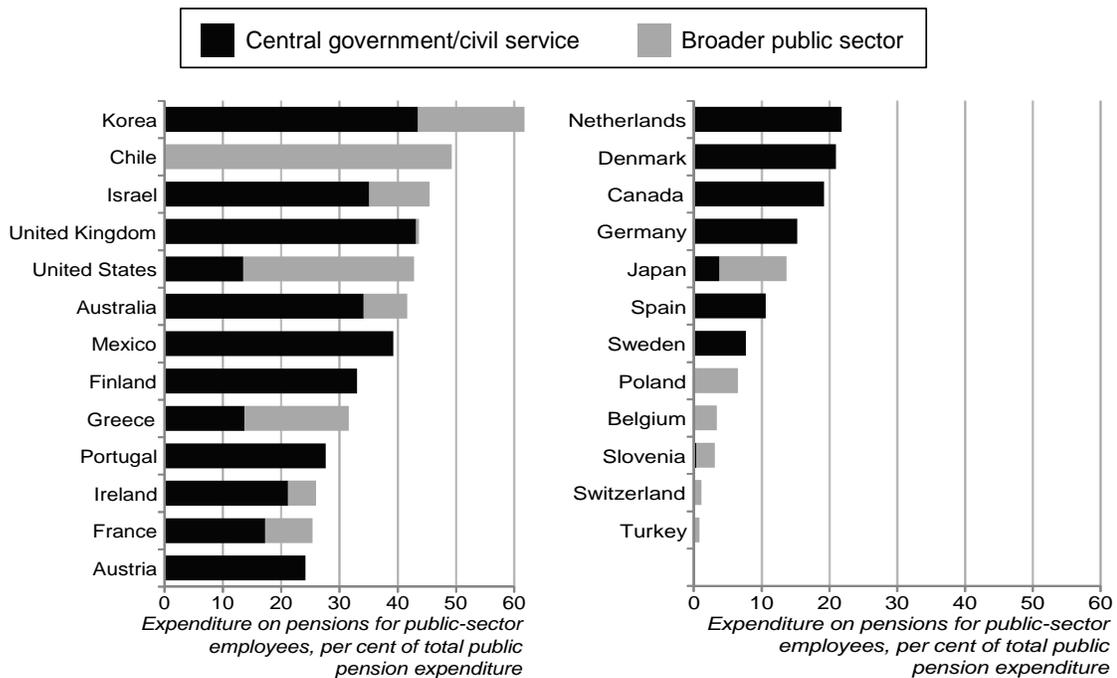
*Source:* OECD social-expenditure database (SOCX).

The proportion of *total* pension expenditure<sup>8</sup> going to public-sector schemes (Figure 5) has a very different pattern from expenditures relative to national income (which were shown in Figure 4). The largest shares are in Korea: over 40 percent of pension spending goes to central government and over 60 percent to the broader public sector. This is explained by the

<sup>8</sup> This refers to old-age and survivors’ cash benefits. The source is again the OECD social-expenditure database (SOCX).

immaturity of the national pension scheme: it was only established in 1988, and so current retirees have spent much less than full careers covered by the programme. The public-sector share will therefore diminish rapidly over coming years as the national scheme matures. The next highest proportions of pension expenditure going on the public sector occur in Australia, Chile, Israel, the United Kingdom, and the United States. The high share in these five countries—above 40 percent—can primarily be explained by the relatively modest size of national schemes. Replacement rates for private-sector workers on average earnings from the public component are less than 20 percent in three of them, 32 percent in the United Kingdom, and 39 percent in the United States. This compares with an OECD average of 42 percent.<sup>9</sup> On average in the 25 countries shown, about a quarter of public pension spending is accounted for by public-sector schemes.

**Figure 5. Costs of Pensions for Public-Sector Employees, Percent of Total Public Pension Expenditure, 2007**



Note: Zero figures for the Czech Republic, Estonia, Italy, Luxembourg, New Zealand, Norway, and the Slovak Republic not shown. Data are unavailable for Hungary and Mexico.

Source: OECD social-expenditure database (SOCX).

<sup>9</sup> See the indicator of “Gross Replacement Rates: Public and Private Schemes” on pp. 120-121 of OECD 2011a.

## 5. Reform options: Improving pension-scheme finances

The policy options for improving the finances of pension schemes for public-sector workers are broadly the same as those that might be applied in reforms of national pension schemes. However, the overall effects may differ between changes to civil-service and national programmes.

The analysis considers three types of pension arrangement. The first is a national defined-benefit scheme. It is assumed that this is an earnings-related scheme: basic pensions and resource-tested benefits are not considered directly here. The second category includes defined-contribution schemes, which are currently mandatory or quasi-mandatory in 11 OECD countries. It also includes notional accounts, which are generally pay-as-you-go financed (like most national defined-benefit schemes) but the benefit formula is designed to mimic the features of defined-contribution plans. Hence, they are often called “notional defined-contribution” schemes.<sup>10</sup> The final case is the civil-service scheme. To keep things simple, it is assumed that this is of the defined-benefit type.

Table 2 frames the discussion of the three scheme types in a stylised way. It sets out five common policies to improve the finances of the retirement-income system. The first two are designed to reduce benefit expenditure.

Changing the **accrual rate**—the amount of pension earned for each year of contributions—is the most direct way of affecting benefits. In practice, such a direct approach is relatively rare. Far more common are indirect changes to the benefit formula: see Whitehouse *et al.* (2009) for a summary of recent reforms in OECD countries. These indirect approaches include moving the **earnings base** from a limited number of best or final year’s pay to the whole career. Another indirect method is to change **valorisation**: the way in which earlier years’ earnings are revalued when calculating benefits to adjust for changes in costs or standards of

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<sup>10</sup> See Whitehouse 2010, 2012 for a discussion of notional accounts and their relationship to other types of pension scheme.

living over time. All of these changes can be grouped together. And they have the same effect in defined-benefit schemes whether for private- or public-sector workers (or both).<sup>11</sup> Expenditures on the defined-benefit scheme will be lower. However, some of this financial gain might be offset by higher spending on resource-tested benefits for low earners, depending on the scale and scope of national safety-net programmes.

The second method of affecting benefit expenditures is to change the way that pensions in payment are adjusted to reflect changes in costs of living. Many governments have changed **indexation** policies (usually to a less generous procedure). But many have often ignored their own indexation rules when making benefit adjustments.<sup>12</sup> The effects of a change in indexation policy should again be the same for the defined-benefit schemes, whether in the public or private sector. However, this is not true of defined-contribution schemes. Annuity values vary automatically with indexation: a price-indexed annuity gives a smaller first-year payment than an unindexed annuity, for example, reflecting expected rates of inflation. The annuity calculation should automatically adjust so that the expected lifetime value of payments remains the same regardless of the indexation procedure. The same should also be the case with notional accounts (and for the same reasons).<sup>13</sup> Since expected lifetime benefits are equal *ex ante* regardless of the indexation method chosen, changes in policy do not affect pension costs.

Increases in **pensionable age**—the third policy option in Table 2—have become increasingly common: more than half of OECD countries are increasing ages for national pension schemes.<sup>14</sup> In the context of defined-benefit schemes (national or public-service), there are two unambiguously positive effects. First, the benefit will be paid for a shorter period and so

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<sup>11</sup> These adjustments to the benefit formula do not, however, apply to notional accounts or defined-contribution schemes.

<sup>12</sup> See Whitehouse 2009 for evidence on national pension schemes.

<sup>13</sup> It would be possible to calculate the annuity rate in notional accounts using a different indexation assumption than that paid on benefits in practice. But this would violate the principles of “actuarial fairness” that are meant to underlie notional defined-contribution plans. See Queisser and Whitehouse 2006 and Whitehouse 2010, 2012.

<sup>14</sup> See Chomik and Whitehouse 2010; OECD 2011a, Part I.1 and OECD 2012.

the cost over the individual’s lifetime is lower. Secondly, people working longer will pay more in contributions. Offsetting this, the extra pension component of social contributions will mean that people will usually have a larger benefit entitlement. The degree of offset depends on the implicit return on those contributions. If a system pays a high return, then the cost of the extra benefits will outweigh the extra pension contribution revenues over time. (There are other taxes and contributions that still benefit the public purse, but the focus here is just on the pension system.) The crucial difference between national and public-sector arrangements is that *employer* pension contributions are a gain for the public finances in the case of national scheme: a transfer from employers (on behalf of their employees) to the government. However, since the government as an employer is simply paying pension contributions to itself on behalf of its employees, there is no net effect on the public finances with public-service plans. There is simply a re-labelling of the various flows in the government accounts. (This important distinction is explored in more detail in the paragraphs on contribution changes below.)

**Table 2. Overall Financial Impact of Reform Measures for Different Types of Pension Scheme**

Reform	National for private-sector workers (defined-benefit)	National for private-sector workers (defined-contribution or notional accounts)	Public-sector workers’ scheme (defined-benefit)
Reduced accrual rates <i>etc.</i>	- positive - but may be offset by higher spending on safety-net benefits	- not applicable	- positive - but may be offset by higher spending on safety-net benefits
Less generous indexation of pensions in payment	- positive	- none	- positive
Increase pensionable age	- positive: extra revenues and shorter benefit duration - but may be offset by higher accruals and higher spending on unemployment or disability benefits - positive effect if extra benefits reduce spending on safety-net schemes	- small or zero: extra contributions balanced by extra benefits and shorter benefit duration by higher benefit amount - may be offset by higher spending on other benefits - positive effect if extra benefits reduce spending on safety-net schemes	- positive: extra employee contribution revenues and shorter benefit duration - but may be offset by higher accruals and higher spending on other benefits - may be offset by higher pay bill - positive effect if extra benefits reduce spending on safety-net schemes

**Table 2. Overall Financial Impact of Reform Measures for Different Types of Pension Scheme  
(Continued)**

Reform	National for private-sector workers (defined-benefit)	National for private-sector workers (defined-contribution or notional accounts)	Public-sector workers' scheme (defined-benefit)
Increase employee contributions	- positive: extra revenues - but may be offset by labour-supply effect	- none: extra contribution revenues balanced by extra benefits	- positive: extra revenues - but may be offset by upward wage pressure
Increase employer contributions	- positive: extra revenues - but may be offset by labour-demand effect	- none: extra contribution revenues balanced by extra benefits	- none: re-labelling

With notional accounts and defined-contribution plans, the relevant pension schemes' finances are unchanged with an increase in pension age. The shorter benefit duration is reflected automatically in a higher per-period benefit. Furthermore, the additional contributions match the additional accrual of benefits (exactly in the defined-contribution case and under certain assumptions of "actuarial fairness" in the case of notional accounts: see Queisser and Whitehouse, 2006).

In all three categories of scheme, there may be an offset to expenditure savings from a higher pension age. This is because people who would have retired on an old-age pension may now effectively leave the labour market early through other pathways, such as unemployment, long-term sickness or disability benefits. These effects are difficult to quantify. Working in the opposite direction, people working longer and accruing higher benefits might reduce the burden of paying safety-net benefits to retirees who had low earnings.

With public-sector schemes, however, there is a further effect from increasing pension ages not observed for the other scheme types. This arises because these are effectively a "closed" system. Most civil services have an automatic link between individuals' length of service and pay. A study of practices in 18 OECD countries found that five (including Ireland and Spain) automatically increased pay with seniority in the public service while five (including Hungary and the Netherlands) linked pay to seniority in a particular post. In some further cases, such

as the United States, length-of-service increments are dependent on achieving an acceptable level of performance.<sup>15</sup> Employees working longer will therefore see their pay increase automatically in most OECD countries. If the counterfactual were that new hires with lower pay would replace worker remaining in their jobs for longer, then the pay bill for the public service will increase. (This also holds if the new hire is at a relatively junior grade and other existing workers all move up a notch.) This effect also has implications for defined-benefit pensions, especially where entitlements are based on final salary. Care is therefore needed when increasing pensionable ages for public-sector workers to ensure that the savings from paying pensions for a shorter period are not offset by a higher pay bill in the short term and higher pensions as people retire on larger salaries.

The final two of the five policy options in Table 2 are designed to generate extra revenues for the pension system through increases in **contribution rates**. With a national defined-benefit scheme, such a change has the expected, positive effect on the scheme's finances. With notional accounts and defined-contribution plans, however, this is not the case. There is a short-term boost to government revenues under notional accounts, for example, but this will be balanced by a broadly equivalent increase in future benefit expenditures (again, depending on the degree of "actuarial fairness" in the detailed design of the scheme).

There are, however, potential offsets in economic behaviour in all cases: national defined-benefit, defined-contribution and notional-account plans. Higher employee contributions will have the effect of an increase in taxes and may therefore reduce labour supply. Higher employer contributions increase employers' labour costs and so may reduce labour demand. In both of these cases, employment will be lower, offsetting some of the revenues raised by higher contributions.<sup>16, 17</sup>

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<sup>15</sup> OECD 2007b.

<sup>16</sup> Some of the extra cost of employer contributions may also be passed on to employees in the form of lower wages, thus mitigating the impact on employment. But this will reduce the base for contributions and so the revenues collected.

<sup>17</sup> The degree to which contributions are (or are perceived to be) a tax and its impact on employment is studied by Disney 2004.

Again, however, the impact of these changes in public-sector schemes is different. Higher employee contributions are a reduction in the take-home pay of public employees. This may lead over time to upward pressure on public-sector pay to offset the impact of the additional levy. Even if maintained, it might hamper efforts to recruit workers for public-sector jobs or perhaps lower the quality and productivity of new hires.

For employer contributions, the government is simply paying more money to itself. This might, for example, eliminate a deficit in the finance of the public-sector pension system. But the economic position of the government is unchanged: either it covers the deficit or it pays higher contributions to itself. Hence, this is an exercise in re-labelling and has no direct consequence for the overall state of the public finances.

## **6. Pension portability and labour mobility**

Most OECD countries have moved towards a much more open recruitment policy of the public service in recent years. This implies an increase in mobility between the public and private sectors: often called “revolving doors”. The reasoning is that cross-fertilisation between the two sectors is of benefit to both, as people bring different skills and experience to bear in different settings.

The OECD has summarised the degree of openness in human-resources policies in civil services in 26 countries. The most open countries—such as Australia, Finland, the Netherlands, Sweden, and the United Kingdom—follow a “position-based” approach. All vacancies are published and all or most posts, including senior management, are open to external applicants. Appointments are made by panels. In contrast, recruitment is relatively closed in France, Ireland and Japan, for example. Appointments are often based on competitive examinations, few posts are published or open to external applicants and senior managers are either selected early in their careers by exam or through career progression within the civil service.<sup>18</sup> Whatever the relative merits of these two approaches, it is apparent

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<sup>18</sup> See OECD 2007, Figure 2.2 and the discussion thereof.

that most OECD countries are now towards the open end of the spectrum and most have been moving in that direction.

The pension arrangements for public-sector workers are often ill-equipped to deal with mobility. They were designed for a situation when people spent all or most of their career in the civil service from their 20s until retirement. Pension schemes can penalise mobile workers in two main ways.

The first is through long “vesting” periods. People who leave the public service before their pension rights are vested often receive nothing from the system, or, at best, a modest lump sum reflecting individual contributions. The minimum length of service to qualify for a pension benefit varies significantly. Vesting is immediate (or takes one year or less) in Canada, Finland, the Netherlands, Sweden, Switzerland, and the United Kingdom, for example. At the other end of the spectrum, service of at least 15 years is needed in Austria, France, Portugal and Spain. In between, there is five-year vesting in Belgium, Germany, Ireland and Italy, for example.

The second way in which the pension system impedes mobility is through the treatment of “early leavers”. These are people whose pension rights are vested but who leave the civil service before retirement. An important concept here is that of “preservation”. The former public servant’s pension is deferred from the time they leave the job until retirement, but some adjustment is made to the benefit value to reflect changes in costs or standards of living during that period. This preserves to some degree the value of the benefit at the time of leaving the job.<sup>19</sup>

There are five different kinds of treatment of early leavers. In Finland, the Netherlands and Sweden, for example, there is full transferability. Workers move to private-sector mandatory (or quasi-mandatory) occupational plans with similar benefits to the civil-service plan. In

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<sup>19</sup> Preservation is thus akin to “valorisation” or pre-retirement indexation of benefits: see OECD 2011a for a discussion.

France, there is full preservation of pension entitlements. Workers' accrued rights are indexed in line with civil-service pay between leaving and retirement.<sup>20</sup>

In other cases, moving jobs entails a pension "cost". The following paragraphs aim to quantify these costs for some selected countries. Each of these illustrates a particular treatment of early leavers: deferral without preservation, partial preservation and retrospective loss of pension privileges.

In the absence of an example within the OECD, the first of these three—deferral without preservation—is illustrated with the example of Mauritius.<sup>21</sup> The left-hand panel of Figure 6 plots accrued pension rights by age. The straight line shows the value of accrued rights if the civil servant stays until retirement: each extra year adds 1/50 of final salary to the eventual pension benefit. The complex curve shows the value of accrued rights if the individual were to leave his or her job at the specified ages. Up to ten years' service, the pension is zero. At that point, people become eligible for a lump sum of one year's salary. At 15 years' service, people are eligible for a deferred pension benefit, that is, their rights are vested. The value of the pension is based on their current salary, with no adjustment to reflect pre-retirement increases in the cost and standard of living (that is, preservation). This is therefore still much lower than the accrued rights would be if the individual were to remain until retirement.

The pension cost of leaving a civil-service job is defined as the difference between the value of accrued pension rights on leaving and the value of accrued pension rights conditional on staying until retirement (that is, the difference between the line and the curve in the left-hand chart of Figure 6). The streams of pension defined benefits can then be converted to a net present value using standard actuarial techniques. This is illustrated in the right-hand panel of Figure 6, with the pension cost of moving jobs normalised as a multiple of the current salary. On this measure, the penalty to mobility in Mauritius is large at young ages because leaving results in a pension of zero, whereas staying to retirement gives multiples of pre-

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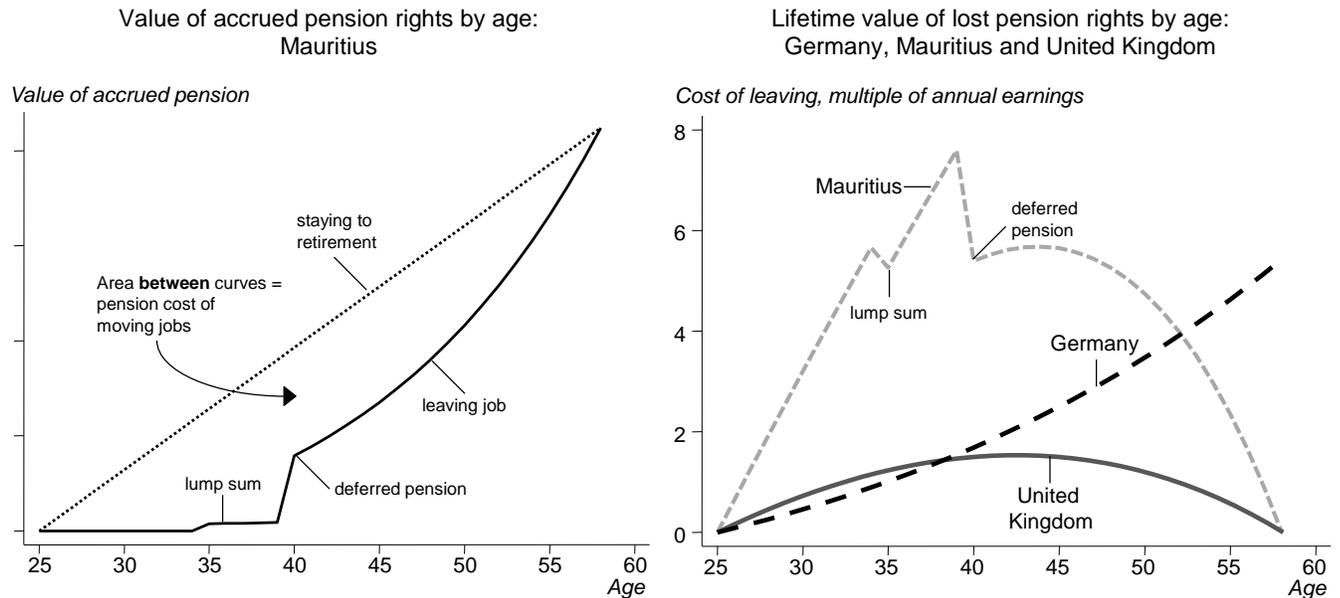
<sup>20</sup> See Conseil d'Orientation des Retraites 2011.

<sup>21</sup> Piggott and Whitehouse 2001 provide a comprehensive survey of the Mauritian retirement-income system.

retirement salary for each year of service. The pre-retirement salary is obviously much higher than current pay. The cost falls back once the individual is eligible for a lump-sum payment, but the penalty for leaving just before pension rights are vested reaches nearly eight times current salary around age 40. After vesting, there is still a large cost to moving jobs because the deferred pension is based on current nominal earnings. As retirement age approaches, the loss of pension benefit due to the difference in salary at retirement age and current salary diminishes.

The United Kingdom improved protection for early leavers in both public- and private-sector pension schemes in a series of reforms from the 1970s to the 1990s. Although the civil-service pension is based on final salary, deferred benefits are adjusted in line with price inflation (up to a ceiling) between leaving the scheme and drawing the pension. This still, however, entails a cost to moving jobs if earnings would have grown in real terms if the individual had remained in the public sector. The pension cost of moving jobs in the United Kingdom is also illustrated in the right-hand chart of Figure 6, assuming 2 percent annual growth in real earnings. The peak cost, for people in their early 40s, is just 1.5 times current salary. This compares with nearly eight times in Mauritius. This shows the significant effect that Inflation-proofing through partial preservation has on pension rights of early leavers.

**Figure 6. Pension Cost of Moving Jobs**



Note: Based on standard OECD 2011a assumptions of 2 percent annual real earnings growth, 2 percent real discount rate and 2.5 percent price inflation. Numbers on scale of left-hand chart omitted deliberately.

Source: Author's calculations: see text and Palacios and Whitehouse 2006 for a detailed discussion of methodology.

The final treatment of early leavers is loss of pension privileges. In Germany, people leaving civil-service jobs lose their rights under the civil-service scheme and are retrospectively transferred to the national scheme. The civil-service plan is more generous than the general one, so this transfer entails a considerable cost. This is also illustrated in the right-hand chart of Figure 6. The pattern of the pension cost of changing jobs with age is considerably different to the inverted-U shape in the case of deferred benefits without preservation (Mauritius) and with preservation of real values (the United Kingdom). In the case of Germany, it rises continuously with age as the loss from the retroactive transfer to the general scheme applies to a longer accrued service.<sup>22</sup>

<sup>22</sup> People may, of course, move from the private into the public sector. However, the pension penalties from moving jobs are typically confined to early leavers (people who leave the public service before retirement) and so are not as significant for people moving from private to public employment. When people move more than once between sectors, then the calculations become extremely complex.

The analysis of the pension cost of moving out of the public service into the private sector naturally begs the question of whether this affects individual behaviour. Pension systems are inherently complex and the actuarial calculations underpinning the illustrations in Figure 6 are not easy. Individuals, unaware of the pension penalty they face in moving jobs (or perhaps discounting these future benefits at a very high rate), might be unaffected. But the evidence suggests that final-salary, defined-benefit pension schemes—the norm for public-sector arrangements—do affect job mobility negatively.<sup>23</sup>

Can public-sector pensions' role in reducing job mobility be justified? The answer to this question lies in the literature on efficient labour-market contracts, which is summarised briefly.<sup>24</sup> The market for labour—as for goods and services—is subject to various asymmetries of information between sellers (workers) and buyers (employers). The most important of these is the amount of effort a worker puts into a job, which is impossible for employers to monitor completely. Assume that employees are averse to effort—so there is a kind of “moral hazard”—and that the probability of an employer detecting shirking (and firing the employee) is positive, but less than one. “Back-loading” remuneration provides a mechanism to encourage effort, and this may be achieved by having earnings profiles that increase with seniority (by more than productivity would dictate) or through defined-benefit pensions. This is particularly true of pensions based on final salary, because the benefit value depends very strongly on tenure in the job. This is the “carrot” part of incentives to work hard; the “stick” occurs when remuneration in alternative employment is lower.

There are many problems with this analysis. First, back-loading of remuneration means that younger employees are paid less than their marginal productivity would suggest, while older workers are paid more. Younger employees might be tempted by better immediate

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<sup>23</sup> McCormick and Hughes 1984 is the classic paper on the United Kingdom; see also Disney and Whitehouse 1996. The literature on the United States is more voluminous: Kotlikoff and Wise 1987, Allen, Clark and McDermed 1993 and Gustman and Steinmeier 1993 are prominent examples. Note that these analyses look at both public- and private-sector defined-benefit schemes based on final salaries, but this does not affect the argument.

<sup>24</sup> Lazear 1981 and 1985, Viscusi 1985, and Ippolito 1991 are the pioneering papers.

remuneration elsewhere, which would be profitable for those employers. Older employees tend to cling on to their jobs and so rules or incentives are needed to push these people into retirement (whilst avoiding severance costs).<sup>25</sup> There is also an important question of the credibility of promises of future wage increases and defined-benefit pensions, given the risk of bankruptcy (in the private sector), downsizing, underfunded pension schemes *etc.* Some job mobility is always optimal, even if only to separate out inefficient matches of workers to jobs: the problem of “square pegs in round holes”. Finally, pensions are not necessarily the most efficient form of “golden hand-cuffs”.<sup>26</sup>

## **7. Conclusions and policy implications**

The policy conclusions come in three parts, the first of which returns to the fundamental design of retirement-income provision for public-sector workers. Two polar cases of pension architecture were identified: a single national pension system covering public and private sectors alike and entirely separate pension schemes applying to the two groups of workers. Most OECD countries lie between these two poles, but they are nonetheless useful benchmarks for the discussion.

Many analyses of pension provision for public employees in the 21st century begin with history. Pension schemes for civil servants and other public-sector employees—in the military, education and publicly owned enterprises, such as railways and postal services—were often among the first groups of workers to be covered by formal, collective pension schemes.

Subsequently, mandatory retirement-income provision was extended to employees in the private sector. There often seemed little point in including public-sector workers—with their own, existing pension arrangements—in new national pension schemes. Separate pension schemes also provided additional degrees of freedom in the government’s human-resources policy as an employer, both in recruitment and retention. At the same time, public servants

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<sup>25</sup> This is Lazear’s 1979 explanation for the existence of mandatory retirement rules.

<sup>26</sup> Akerlof and Katz 1989.

and their trade unions have proved powerful in protecting their own financial interests and governments may have been keen to push the cost of remunerating their employees into the future by offering pay-as-you-go pensions (effectively deferred pay) instead of higher current salaries.

For these reasons, special retirement-income schemes for the public sector have often persisted. The key policy question is whether this “dualism” of retirement-income provision still makes sense today or whether public-sector workers should be integrated into a single national pension programme.

First, many of the historical rationales for the original public-sector pension arrangements are less relevant. For example, a common objective was to retire older civil servants in a politically and socially acceptable way. Thus, public employees would not be forced, for financial reasons, to continue working (at the extreme) until the day they died. This no longer applies now that national pension systems are in place. Pension schemes were often part of broader reform of the civil service to ensure professionalism (through meritocratic appointments) and independence of employees from outside influence. The latter was to be achieved through lifetime employment and pensions, so that public-sector workers could not profit from their experience in the private sector. This is less relevant today in the world of “revolving doors” between the two sectors discussed in Section 6. The evidence on the extent of mobility is somewhat limited, but a number of countries show that few retiring public-sector workers have spent all or nearly all of their careers in a single scheme. Other mechanisms have been put in place to avoid conflicts of interest that might arise from revolving doors. Pension schemes were also designed to enhance the appeal of working for the public service. Attracting high-quality staff remains an important goal. But public-sector pensions are often expensive, and it is important to evaluate whether this is a cost-effective recruitment tool compared with alternative policies. How highly do public-sector workers value their pension entitlements relative to their cost?<sup>27</sup> Furthermore, many highly qualified

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<sup>27</sup> See the National Audit Office’s 2010 critique of the assessment of public-sector pension reforms in the United Kingdom, for example.

workers today expect a varied career: pension schemes that penalise people who change jobs may act as a *disincentive* to public service.

Secondly, there are many arguments against dualism. As often found in economics, the arguments can be divided into those concerned with equity and those related to efficiency. On the equity side, the issue of comparability of benefits between public- and private-sector retirement-income provision was raised in the introduction. After all, it is private-sector workers' taxes that finance much of public-sector workers' pensions. Comparability of pension packages between sectors is in constant flux. For example, many national pension schemes have seen significant reforms in the past two decades (Whitehouse *et al.* 2009). Furthermore, there has been much change to private pensions for private-sector workers in most of the countries where coverage of these is broad. In Canada, Ireland, Sweden, the United Kingdom and the United States, for example, there is a pronounced trend away from defined-benefit to defined-contribution provision.<sup>28</sup> This can leave defined-benefit schemes for public-sector workers looking anachronistic. It seems difficult to argue that public-sector workers require higher income replacement in retirement (or consumption smoothing over the lifecycle) than their counterparts in the private sector. Similarly, lower pensionable ages in the public service are enjoyed by rather more workers than might be justified on the grounds of the nature of the work that they undertake.<sup>29</sup>

On the efficiency side, administrative issues can be important. There are significant economies of scale in managing unified pension systems: in contribution collection, record-keeping and benefit payment, for example. Dual arrangements can entail significant duplication and wasted administrative expense, especially in smaller countries. But even in larger countries, there are cases of very fragmented provision between different groups of public-sector workers.<sup>30</sup> Furthermore, the people who manage national pension schemes are generally employees of the civil service or of general government. If they are also

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<sup>28</sup> See Box I.1 in OECD 2009a for detailed data on this trend.

<sup>29</sup> Moreover, these arguments might apply to many private-sector workers: see Zaidi and Whitehouse 2009.

<sup>30</sup> See Sliuchynsky 2015 for detailed analysis.

members of the national scheme, they have a direct, personal interest in ensuring that this programme is well managed. Next, barriers to mobility between public and private sectors may reduce economic efficiency. (Even if the pension cost of moving jobs does not affect behaviour, there is an equity issue between the treatment of workers that stay to retirement and early leavers.) The complexity of pension arrangements in public and private sectors makes it very difficult for individuals to compare the attractiveness of different jobs. Through greater transparency, a common pension scheme would make such choices easier.

Starting from first principles, an integrated national pension scheme, covering both public and private sectors, would make sense. Governments might wish to offer top-up arrangements, but these need careful evaluation against alternative policies. However, because we are not starting from scratch, integration can only be a long-term goal. First steps towards it would include a degree of harmonisation of parameter and rules between the separate arrangements. This requires other parts of the terms and conditions of public-sector employment—including pay—to be taken into account. The argument is often and widely put that higher pensions for public-sector employees than offered by national schemes are a form of compensation for lower wages. The vast literature analysing differentials between the two sectors does not, however, provide robust evidence for such a differential. First, the differences in characteristics between public- and private-sector employees need to be taken into account: the public sector, for example, employs a disproportionate share of graduates. Secondly, the pay differentials have often been found to vary between different kinds of people: between men and women and between people with high levels of educational attainment and those with lower education levels. Careful analysis of both pay differentials and of differences in pension entitlements are needed before a definitive assessment of the compensation argument for different public-sector pension arrangements.

Within the OECD, Chile, Mexico, and the United States have integrated many or most public-sector workers into national pension schemes, while in Turkey there is an on-going

debate about such a reform. Outside of the OECD, there are a few examples of similar integration into national retirement-income arrangements.<sup>31</sup>

Short of full integration, the policy reforms implied by the analysis include those to improve portability of pension rights between different pension schemes. These comprise shorter vesting periods, preservation of the value of deferred benefits and basing pensions on lifetime rather than final salary. Options for improving the financial position of public-sector pensions are the same as national pension schemes. However, their effects—particularly increasing pension ages and changing employee or employer contribution rates—can be different between public-sector and national schemes.

There is not a great deal of analysis of retirement-income provision for public-sector workers at a cross-country level. In part, policy in this area falls between pension analysis—which focuses mainly on the design of national schemes or the functioning of private pensions—and analysis of public sector governance. At the heart of this is the conflict between the social-policy objective of ensuring adequate retirement-incomes for all and human-resources goals, such as rewarding long-serving public employees. It is important that both perspectives are taken into account.

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<sup>31</sup> Palacios and Whitehouse 2006, Table 11.

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## Abstract

In 27 out of 34 OECD member countries, there is institutionally separate retirement income provision for some or all public-sector workers. But the scope of these pension schemes varies significantly: from a modest top-up to the national pension arrangements (covering private-sector workers as well) to entirely independent retirement-income regimes. Average expenditure on these schemes amounts to about 1.5 percent of GDP, or nearly a quarter of total public pension spending.

Public-sector pension reform is an issue of great political importance in many countries. Central governments' workforces are ageing rapidly in all but four of the 26 countries for which data are available. One in three of central-government employees were aged 50 and over in 2009, compared with 22 percent in 1995. This rapid ageing is pushing up the cost of pension schemes at a time when many OECD countries are embarking on fiscal consolidation.

This paper examines the arguments and the options for reforming public sector pension schemes from an international viewpoint. It assesses five different policies to reduce expenditures or increase contribution revenues, showing how these can have very different effects in a public-sector scheme than with national retirement-income arrangements.

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