2

Fiscal and Demographic Challenges

I . . . place economy among the first and most important of republican virtues, and public debt as the greatest of the dangers to be feared.

—Thomas Jefferson

With the rich world's populations rapidly aging, all governments are, or very soon will be, facing tough policy choices forced on them by the fiscal implications of aging. This is the case irrespective of whether countries have pay-as-you-go (PAYGO) pension systems, funded systems, or hybrids of the two. The broad impact of pension-related expenses on government finances will be negative, even though there will be occasional relief in the form of increased tax receipts from pension withdrawals.[1] However, the exact scope of the pension challenge to countries' fiscal policies is clouded by vast cross-country differences both in the gravity of the demographic change and in the current "starting points" of government fiscal positions.

This chapter attempts to bring together the key concepts and data required to analyze the scope and impact of the future fiscal and demographic challenges. Focusing on cross-country comparisons of key concepts, we show comparatively that the challenge for numerous countries looks very different from what is frequently assumed, after accounting for such factors as net government debt levels, the existence of private pension assets, sovereign and public pension reserve funds (SPPRFs), the

1. Under the most prevalent tax-preferred treatment of private pension savings, where taxation is postponed until the time of withdrawal of savings, sudden large withdrawals may temporarily raise a government's tax income.

level of taxation applied to pension benefit payments, the value of tax breaks for pension provisions, and effective (rather than statutory) retirement ages. The comparative picture is summarized in appendix table 2A.1.

As mentioned in chapter 1, in order to avoid "getting lost in the weeds" of country-specific data and information, we focus in this chapter on the broad concepts mentioned above and on the cross-country lessons. We do not include a comprehensive listing and combined effects of small and large pension-related reforms in individual countries in recent decades.[2]

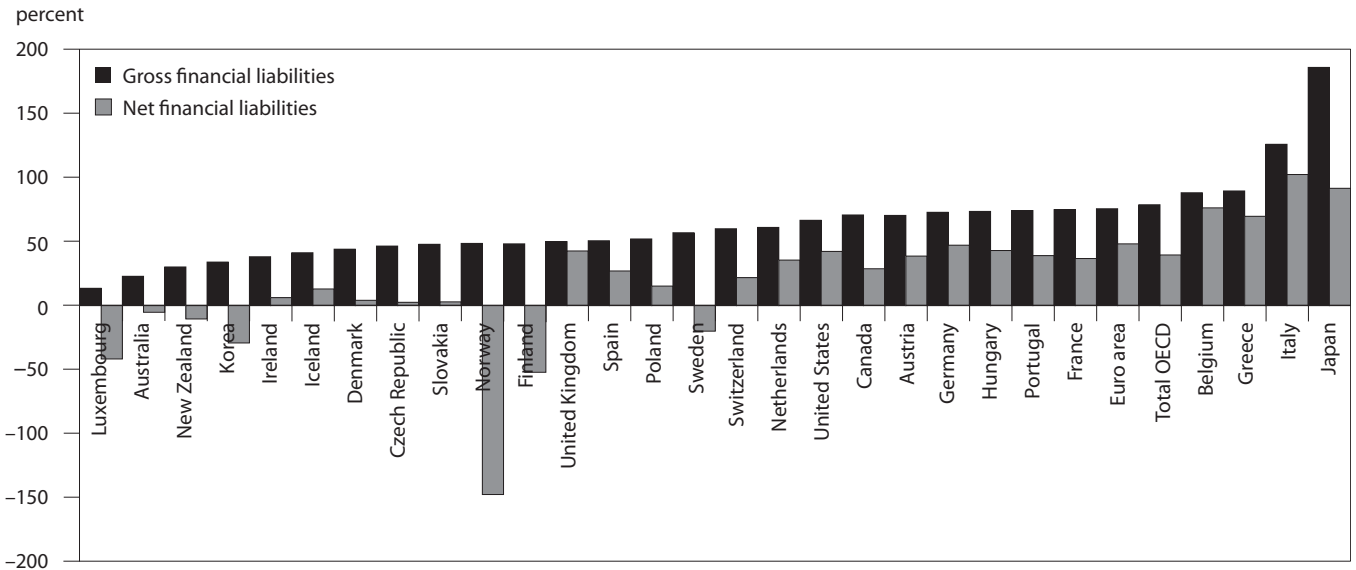
The chapter is organized in the following manner: First, in order to set the factual stage for the pension debate, we analyze the different fiscal starting points of governments in terms of debt, deficit levels, and nongovernment pension assets. Next we examine the actual net costs to governments of pension provision, with a special focus on the differences between countries in taxation of pension benefits and in the use of tax breaks with a social purpose. Last, we consider the principal driver of future fiscal trends in pensions. We present the diverse demographic outlook for the economies of Organization for Economic Cooperation and Development (OECD) and look at the scope for changes in fertility and immigration to change this picture under realistic scenarios. We pay particular attention to the difference between the future effect of aging by itself (i.e., demographics) and the impact today of already very low effective retirement ages (i.e., labor market outcomes). In several OECD countries, the impact of actual ages of withdrawal from the labor market on long-term sustainability is already larger than that projected from the demographic aging process until 2050.

Assessing Countries' "Fiscal Starting Point"

The ability of governments in the future to manage the effects of an aging population depends in part on how much debt they have on their books today—how large are the liabilities already incurred and thus already payable by future generations. The terms "debt" or "financial liabilities" are defined in many different ways, depending on the precise use and context. The most frequently used concept, that of gross general government financial liabilities, provides a measure of the total outstanding issuance of government paper of all kinds. Figure 2.1 shows gross liabilities by country for OECD participants in 2006 and reveals that the range of values is quite large—from 179 percent of GDP in Japan to just 10 percent in Luxembourg, with the United States and the large EU countries at

2. For this type of more comprehensive model-based approaches, see EPC and European Commission (2005), European Commission (2006), Carone et al. (2005), and OECD (2005a, 2007a).

Figure 2.1 General government fiscal positions, 2006



Note: Gross debt data are not always comparable across countries due to different definitions or treatment of debt components. Notably, they include the funded portion of government employee pension liabilities for some OECD countries, including Australia and the United States. The debt position of these countries is thus overstated relative to countries that have large unfunded liabilities for such pensions, which according to ESA95/SNA93 are not counted in the debt figures but rather as a memorandum item to the debt. Net debt measures are not always comparable across countries due to different definitions or treatment of debt (and asset) components. First, the treatment of government liabilities with respect to their employee pension plans may be different. Second, a range of items included as general government assets differs across countries. For example, equity holdings are excluded from government assets in some countries, whereas foreign exchange, gold, and special drawing rights holdings are considered assets in the United States and the United Kingdom. Germany includes the debt of the Inherited Debt Fund, and Japan includes the debt of the Japan Railway Settlement Corporation and the National Forest Special Account.

Source: OECD *Economic Outlook,* December 2007.

about 50 to 70 percent. (These data do *not* include government pension liabilities; see below. All levels of government—national, state, and local—are included, however).

This concept of gross liabilities is often used in discussions but is far from the most valid concept when discussing pension obligations and aging populations. Instead, "*net* general government financial liabilities" is a consolidated concept, netting out the financial assets of the general government sector, which may include such assets as cash, bank deposits, loans to the private sector, participation in private-sector companies, holdings in the central bank, and public corporations, or even in some countries foreign exchange reserves.[3] These net liabilities provide a better picture of the total debt service obligations of governments that will have to compete with pensions for resources. Governments may issue gross debt in the form of debt securities for several reasons apart from the need to raise funds. Specifically, a relatively large level of outstanding government bonds at different maturities is often instrumental in ensuring a liquid national risk-free debt benchmark against which private-sector debt may be priced in the financial markets. Some level of outstanding gross government debt is, therefore, independently beneficial to an economy and need not have a close relation to the overall government fiscal health.[4]

Figure 2.1 accordingly also shows net liabilities by country, and it is clear that the shift makes a very large difference for some countries. As a result of particularly large holdings of securities by the Bank of Japan, Japan drops nearly 100 percentage points to "just" 85 percent of GDP. The United States drops to 43 percent and Canada to 27 percent. Italy, with just below 100 percent of GDP in net liabilities, is now the country with the most wobbly looking general government finances, while governments in Australia, Finland, Korea, Norway, Luxembourg, New Zealand, and Sweden

3. See the footnote to OECD Sources and Methods for the *Economic Outlook* data, the source of the data in figure 2.1. This footnote states that, in general, some caution must be taken in interpreting these data, due to national institutional differences. It states further: "The figures for net financial liabilities measure the gross financial liabilities of the general government sector [gross data which are consolidated within and between the sub-sectors of the general government sector, national sources permitting] less the financial assets of the general government sector. For the United States, the data reported by the Federal Reserve and used by the OECD include only that portion of the liabilities that is funded (which amounted to 8.3 percent of GDP at the end of FY2003, including both pension and insurance reserves). Both government assets and liabilities exclude the Thrift Plan of Federal Employees Retirement system, which is classified outside the general government sector. Unfunded central government pension liabilities are excluded from the data (they amounted to 10.2 percent of GDP in 2001)." See methodological notes to sources of OECD (2007b) at www.oecd.org.

4. In 2000 there was concern in the United States about the disappearing government debt and its impact on financial markets (those were the days). Norway has continued to issue government bonds to create a benchmark for financial markets.

were actually net creditors as of 2006 (the figure shows the amounts of liabilities, so that countries with negative liabilities are in fact net creditors).

Governments that in the present stage of their population aging processes are in positions of generally sound government finances and post positive net government financial liabilities are further at a substantial advantage relative to countries that are already deep in the red. The former group will have far more policy options available to them in the years ahead, while potentially also needing to make only modest modifications to their pension systems to remain solvent and/or keep their investment grade credit rating.

One sign of the potential importance of this issue comes from Standard & Poor's (2006), which predicts that in a hypothetical "no policy change" option of simply continuing current general fiscal policies, only three members of the OECD or European Union (Austria, Canada, and Denmark) would be able to issue investment grade securities by 2040; the United States would drop into speculative territory between 2020 and 2030. Such a decline in credit rating for most of the OECD countries could be associated with a significant rise in government debt service costs, as investors demand a higher risk premium to own these (now perceived as) riskier assets. Although the highly liquid and varied super-AAA-rated dollar-denominated US Treasury bonds currently benefit from their status as the principal "safe haven" for global investors in times of financial uncertainty, that status may be threatened as the United States faces additional adverse impacts from a credit downgrade in a "no policy change" scenario.

The next important step in evaluating governments' "starting positions" is to look at current government fiscal balances—whether budgets have recently been in deficit or surplus. Countries with structural surpluses on their current budgets will, ceteris paribus, be better able to weather future deficits in their pension accounts, as they will typically need fewer reforms in other policy areas. At the same time it is the case that excessive tax cuts, overly generous unemployment benefits, too easy access to disability pension, or repeated loss-making government bailouts of national champions can undo the positive fiscal effects of even the most far-sighted pension reforms.

The inclusion of annual deficits to get a fuller picture is particularly relevant in countries such as the United States, which explicitly includes in its federal government deficit numbers the current surpluses (and by inference, therefore, future deficits) of its Social Security Trust Funds. Technically, these amounts are shown as "off-budget,"[5] but they are

5. The United States by law excludes the revenues and outlays of the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund as well as the transactions of the Postal Service from the budget. The Old-Age and Survivors Insurance Trust Fund (i.e., the Social Security Trust Fund) is by far the largest of the three. See CBO (2007a).

nonetheless included as part of the headline deficit figures each year. In 2006 the US Social Security surplus amounted to $186 billion; without its inclusion the US federal deficit that year would have been not the official $248 billion but rather $434 billion.[6] However, as the cash flow in the Social Security Trust Funds turns negative (projected to occur in 2018–19), a rapidly rising "off-budget" deficit from Social Security will have to be included in the annual headline figures. This development will certainly (ought to at least) serve to raise the political tension surrounding the general annual spending priorities in the US federal budget.[7]

The last "starting point" feature to consider is what assets governments or other private actors may already have amassed (i.e., prefunded) to provide for future old age expenditures. Differing institutions, histories, and traditions across countries somewhat complicate this issue. Hitherto, the precise status and treatment of government-sector pension assets in funded pension schemes in the national accounts have frequently been arbitrary and occasionally subject to outright manipulation by governments.[8]

Currently (but soon to be revised)[9] the international System of National Accounts (SNA; guidelines for measuring GDP and government accounts) distinguishes between two types of funded pension plans[10]: autonomous and nonautonomous. The first, also known as government pension reserve funds, should be classified as outside the general government sector, which means that their assets and liabilities are not reflected in the general government debt data in figure 2.1. Nonautonomous pension plans should be classified as inside the general government sector and only the funded component reflected in the general government liabilities.[11]

As we explain below and in chapters 3 and 7, the accounting for future government pension spending is a particularly problematic aspect of

6. Data are from OMB (2007).

7. See, for instance, Nataraj and Shoven (2003) for an in-depth discussion of the distinction between the unified, on- and off-budget federal government balances.

8. See van den Noord and Koen (2005) for an inventory of such abusive government practices.

9. See OECD (2007c) for an overview of proposed changes in the System of National Accounts 93 rev. 1.

10. SNA Annex IV, The Treatment of Insurance, Social Insurance and Pensions; Entry 12: The Units Involved. Available at http://unstats.un.org/unsd/sna1993.

11. The SNA further recommends that the liability inherent in unfunded schemes be recorded as a memorandum item for the government sector. However, the online footnotes to the OECD *Economic Outlook* state diplomatically, "while some countries have produced some estimates of these implicit liabilities, few follow the 1993 SNA recommendation." Available at www.oecd.org.

liability assessment. At this point, though, the issue is limited to the asset side of the balance sheet and to the question of which prefunded assets to include in the starting point. The United States, with the Social Security Trust Funds, has for decades earmarked government pension reserve funds that have by now accumulated substantial assets. Some other countries, such as Canada in 1997 or France in 1999, only started accumulating SPPRFs much later, and their funds are, therefore, much smaller. According to the OECD (2007d), 16 OECD countries now have an SPPRF, up from 13 in 2005. Thus almost half of the OECD countries have no government SPPRF and continue to fund pensions directly out of contribution revenue and general tax revenue.[12]

Some countries, like the Netherlands, rely on mandatory employment-related schemes that accumulate pension assets in private plans that are administratively and legally separate from the government. The same is true for the many employer and union pension plans in the United States. Other, particularly European, countries rely overwhelmingly on unfunded pension systems.

Due to the large historical institutional differences and ambiguous accounting rules, the best approach (or perhaps, better put, the least misleading approach) to cross-country comparisons of the assets already available for a country's future pension provision is to include not only the general government net debt position above, which includes non-autonomous pension plan assets, but also private pension assets, which include autonomous pension plans. On the one hand, counting all private pension assets, which overwhelmingly are the legal property of private individuals, will overstate the value of assets immediately and directly available to governments for future pension provision. On the other hand, excluding private pension assets would make the analysis deeply flawed, as it would not include the influence on government pension policy actions of the presence (or absence) of significant private pension assets. Accordingly, we make a separate accounting for such private pension assets as we assess the sustainability of countries' pension systems. However, we caution that this analysis remains incomplete. The inclusion of formal private pension assets cannot account for the direct and indirect effects on government retirement income policy actions of people's potentially large savings toward retirement outside the formal pension system. Such savings are typically in the form of housing, informal assets, and other non-pension financial assets.[13]

12. See OECD (2006a, 2007d). Seven of the 16 OECD SPPRFs started in the last 10 years.

13. With house prices rising rapidly until 2005–06 in many countries, real estate—at least temporarily—took on a more prominent role in many older homeowners' total wealth. See Apgar and Di (2005).

In calculating the assets of designated private pension funds,[14] however, we have to account for the fact that in several countries most private assets for pension provision are held not in pension funds, as in the United States or United Kingdom, but rather as assets in the life insurance sector.[15] This is the result of either simply historical tradition or favorable tax treatment and it applies, for instance, to Sweden, which has few private pension assets (just 9 percent of GDP in 2006) but substantial private life insurance assets (43 percent of GDP in 2006).[16] Finally, private pension assets should also include (nonautonomous) book reserves—company pension promises to employees backed only by corporate productive assets (and not a legally separate pension fund), which for instance in Germany remain legal and popular as a means of financing corporate pension liabilities.[17]

Figure 2.2 illustrates the combination of the different pieces of information described so far that determine a country's starting point for pension assessment. These three elements are (1) the (stock) level of government net debt (as shown in figure 2.1); (2) the (flow) budget deficit (the average cyclically adjusted deficit for 2002–06, the most recent five-year period); and (3) the (stock) level of prefunded pension assets. The position of the diamonds in figure 2.2 indicates the first two of these and thus reflects each country's fiscal situation.[18] The figure's four quadrants

14. The OECD classifies pension fund assets in the following manner: "The pool of assets forming an independent legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The plan/fund members have a legal or beneficial right or some other contractual claim against the assets of the pension fund. Pension funds take the form of either a special purpose entity with legal personality (such as a trust, foundation, or corporate entity) or a legally separated fund without legal personality managed by a dedicated provider (pension fund management company) or other financial institution on behalf of the plan/fund members" (OECD 2006a, 12).

15. The OECD classifies such assets as "An insurance contract that specifies pension plan contributions to an insurance undertaking in exchange for which the pension plan benefits will be paid when the member reaches a specified retirement age or on earlier exit of members from the plan" (OECD 2006a, 12).

16. From the OECD Global Pension Statistics database. In the United States 18 percent of GDP was in life insurance assets in 2005 and 74 percent in pension fund assets. Available at www.oecd.org/daf/pensions/gps.

17. The OECD defines (nonautonomous) book reserves as "sums entered in the balance sheet of the plan sponsor as reserves or provisions for pension benefits. Some assets may be held in separate accounts for the purpose of financing benefits, but are not legally or contractually pension plan assets" (OECD 2006a, 12).

18. The OECD data presented in figure 2.2 distinguish between four different taxes in the cyclical adjustment process: personal income tax, Social Security contributions, corporate income tax, and indirect taxes. Unemployment-related transfers are treated as cyclically sensitive. No adjustment for long-term pension-related liabilities is made, and US data do not include off-budget items. See Girouard and André (2005) for detailed methodology.

represent budget surpluses or deficits as percentages of GDP (vertical axis) and level of government net debt or net total assets (horizontal axis), also as a percentage of GDP.[19] Combining stock and flow for government finances (the position of the diamonds) reveals significant differences among OECD nations. The diamonds for countries such as Greece, Hungary, Italy, Japan, and the United States appear in the undesirable lower left corner because they have both significant levels of net general government liabilities and high recurring structural deficits, which will likely continue to add to their debt totals. The same is true to a lesser extent for the four large EU countries (France, Germany, Italy, and the United Kingdom) as well as Portugal. Moving toward the upper right, on the other hand, reveals that a number of countries—Australia, Canada, Ireland, the Scandinavians, Switzerland, and New Zealand—have significantly sounder current government fiscal positions with both structural surpluses and more modest total debt levels as of 2006.[20]

Even before considering pension liabilities and the costs of future adverse demographics, figure 2.2 illustrates that countries with diamonds in the lower left quadrant—especially Greece, Hungary, Italy, Japan, and the United States—will need to achieve some degree of broader fiscal consolidation to be able to afford any additional pension expenditures in the coming decades.[21] In contrast, the further countries are to the right and up in figure 2.2, the more additional future pension expenditure their governments in general will be able to afford. Politicians in Finland, New Zealand, and Sweden face a vastly more benign general fiscal outlook when considering their pension options than do their Japanese or Greek colleagues, and as a consequence, many more options will be available to them and less draconian measures perhaps needed.

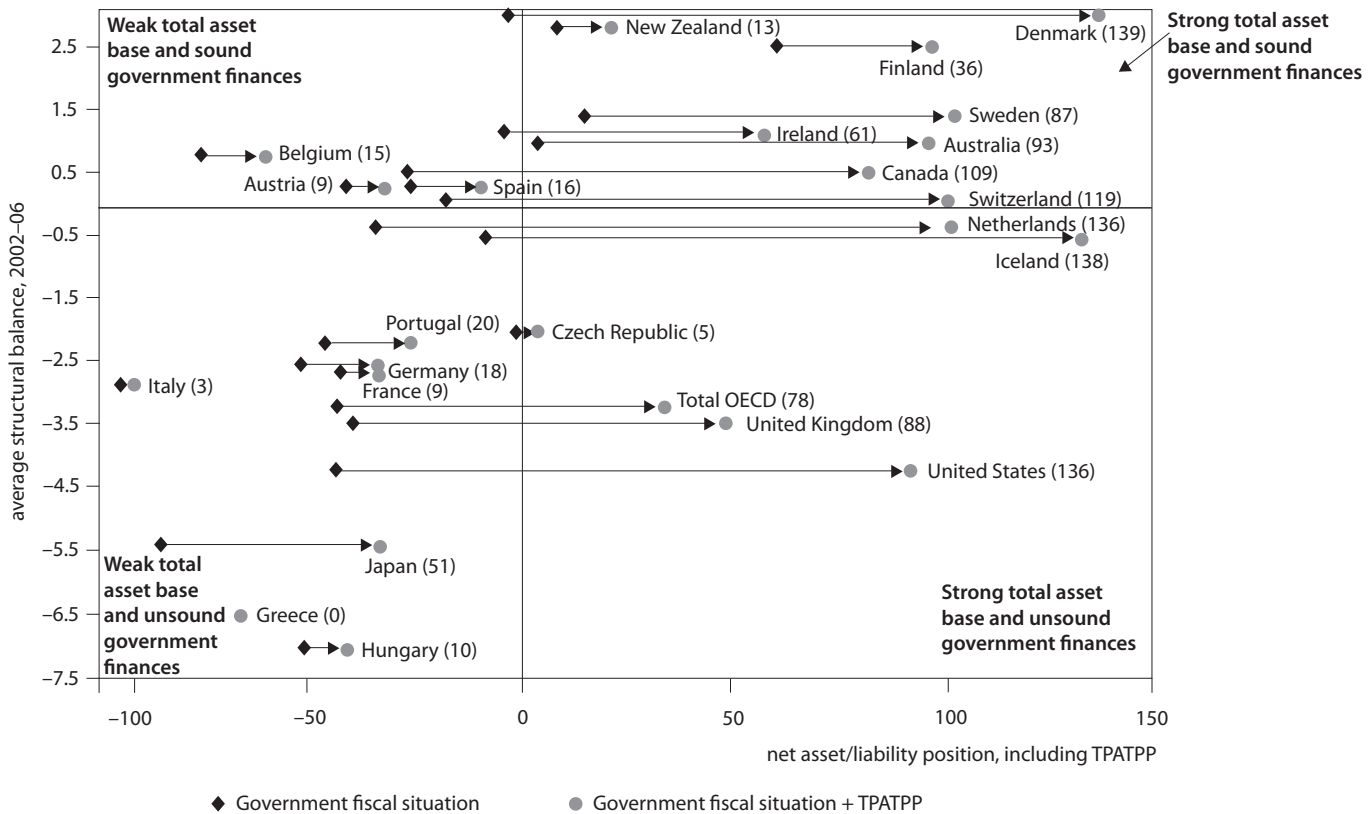
Figure 2.2 also includes information about prefunded pension assets accumulated. These data come from the OECD Global Pension Statistics and cover the available consolidated data for what we, lacking a more inspiring terminology, will term total prefunded assets toward pension provision (TPATPP), which include autonomous sovereign and public pension reserve funds (SPPRFs for all levels of government), private pension fund assets, private life insurance assets, private nonautonomous book reserves, and other private assets (including all types of pension plans, whether occupational, personal, mandatory, or voluntary and in both the

19. The four quadrants do not themselves necessarily determine a country's overall fiscal and net asset position. A position toward the lower right in figure 2.2 merely means that a country has a *relatively* stronger total asset base and weaker government finances.

20. Norway is excluded from figure 2.2 for reasons of readability of the figure.

21. See also Standard and Poor's (2006) for an evaluation of which countries should focus on immediate budget consolidation and which countries on pension reforms in order to retain their credit ratings.

Figure 2.2 OECD countries' "starting point" in 2006 (percent of GDP)



Note: For details on what is included in total prefunded assets toward pension provision (TPATPP), see appendix 2A. Numbers in parentheses are country's TPATPP in percent of GDP.

Sources: OECD *Economic Outlook,* December 2007; OECD Global Pension Statistics, 2007; authors' calculations.

public and private sectors). The detailed data for what is shown in figure 2.2 are explained in appendix 2A.[22] The lengths of the arrows in the figure show how each country's overall asset and pension financing situation is shifted by adding TPATPP to net general government assets, and the circles show the combined net government assets plus TPATPP in each country. The number in parentheses (indicating the distance between a country's diamond and circle in figure 2.2) shows the value of the country's TPATPP in percent of GDP.

Adding TPATPP to the picture makes a very large difference for some countries, but much less for others. In seven OECD countries—Canada, Denmark, Iceland, the Netherlands, Norway (not shown), Switzerland, and the United States—for which data are available, TPATPP exceed 100 percent of GDP. Of these, the United States (perhaps surprisingly to some) is among the most frugal pension savers, with fully 136 percent of GDP in government pension reserve funds, private pension fund assets, life insurance assets, or other pension assets, all of which improve the overall outlook for US pension sustainability. The comparison to France is illustrative, as the two countries are almost identical today in terms of the stock of net government debt and recurring structural deficits, but with the addition of private-sector and prefunded pension assets the United States pulls ahead of France in terms of the total availability of pension assets and moves substantially farther to the right in figure 2.2. Figure 2.2 thus illustrates that if the United States could achieve structural budget surpluses (which would probably require a substantial cost-reducing health care reform, government revenue increases, or a combination thereof), it would join the best-positioned and best-prepared OECD countries in the upper right quadrant.

It is noteworthy that, with the inclusion of TPATPP, the longer-term sustainability of Japan does not look nearly as bad as is frequently postulated, based solely on gross government debt levels. Again, as with the United States, this suggests that Japan should return fiscal policy to structural surpluses (Ito 2007) in order to promote the longer-term sustainability of pensions (subject to the caveat that fiscal policy should not drag the economy back into stagnation).

Most of the countries with government structural surpluses in the early years of the 2000s—notably Australia, Canada, Ireland, the Scandinavian countries, and New Zealand, all in the upper right corner of figure 2.2—also have substantial TPATPP at their disposal for future pension

22. A crucial item on the flow side (y-axis) that is missing from the TPATPP data series (grey circles) in figure 2.2 is the annual levels of earmarked member contributions, investment returns, and benefit payouts on private pension assets. However, no consistent cross-country data exist for this category. We also note that adding TPATPP assets to a country's government net financial liabilities means adding private assets that may be invested in many different ways and frequently outside the country.

provision. Thus, with both sound government fiscal balances and a strong broad asset base at present, these countries can with some justification claim a relatively nonthreatening starting point at the cusp of the era of more rapid population aging. In other words, for this group of countries—even without substantial further future pension reforms—alarmist predictions of pension-related fiscal doom seem unwarranted.

However, as is evident in the lower left corner of figure 2.2, the opposite is the case in some countries. For example, it is striking that a country such as Greece, with a government fiscal position broadly comparable to that of Japan, has no TPATPP of any magnitude and therefore is at a far worse starting point than Japan. Similarly, with a combination of poor government finances and a weak base of TPATPP, France, Germany, Hungary, and Italy also face considerable potential threats from their aging populations in the future.

In summary, figure 2.2 shows that long-term pension reforms in several countries will be best initiated by—and quite possibly require—improving the overall structural budget balance. This applies to Japan, the United States, and the four large eurozone members. Figure 2.2 also shows that in several countries—conspicuously Canada, Japan, the Netherlands, the United Kingdom, and the United States—the addition of TPATPP materially improves their starting points. Last, the other English-speaking countries and the Scandinavian countries are in far better starting positions than the rest of the OECD.

True Cost of Public Pensions Today

In the previous section we set the stage by looking at the overall fiscal starting point of OECD countries and the extent to which that position is affected by private pension assets. We turn now to the size of future government pension liabilities, starting with a deceptively simple question: How much do governments currently spend on pension provision?

One way to answer the question is to look at the amount paid out in pensions from gross public expenditure data. However, this measure is not accurate because public pension expenditures need to be adjusted for the impact of taxation—that is, how much the government takes back of the benefits it provides, a calculus that both reduces the generosity of pensions and the future fiscal challenge to governments as their populations age. At the same time, government tax provisions can also supplement retirement income. Thus we make two major adjustments to public gross pension expenditure data: We (1) assess the impact of direct and indirect taxation, which varies widely by country, and (2) include the costs to the public of tax benefits offered to pension savings. These adjustments dramatically alter the total as well as relative present public pension spending levels among OECD countries.

Figure 2.3 shows the total public gross cash benefit pension expenditures for selected OECD countries from 1990 to 2003.[23] Due to access to early retirement schemes in many countries, we include in figure 2.3 not only the total costs of public pensions but also the costs to treasuries of early retirement schemes.[24]

Wide differences exist in gross expenditures among generally high-spending continental European countries that were already allocating more than 10 percent of GDP in 2003 to public pension provision. At the same time, most of the English-speaking OECD countries spent about half that amount (US 6.2 percent), Korea and Mexico the least, and the remaining OECD members (many of which are not included in figure 2.3) 5 to 10 percent of GDP.[25]

For most countries, public pension expenditure levels have been relatively stable since 1990. Ireland even saw a drop in its expenditure for pension provision benefits. It experienced this decline in expenditure as a share of GDP, partly as a result of better demographics (a younger population than most of the rest of the OECD) and partly due to rapid economic growth over the period, once again illustrating that the rising tide of a growing economy may lift even the supertanker of increasing pension expenditures (Irish public pension expenditures actually more than doubled in real terms from 1990 to 2003[26]). Plain economic growth should

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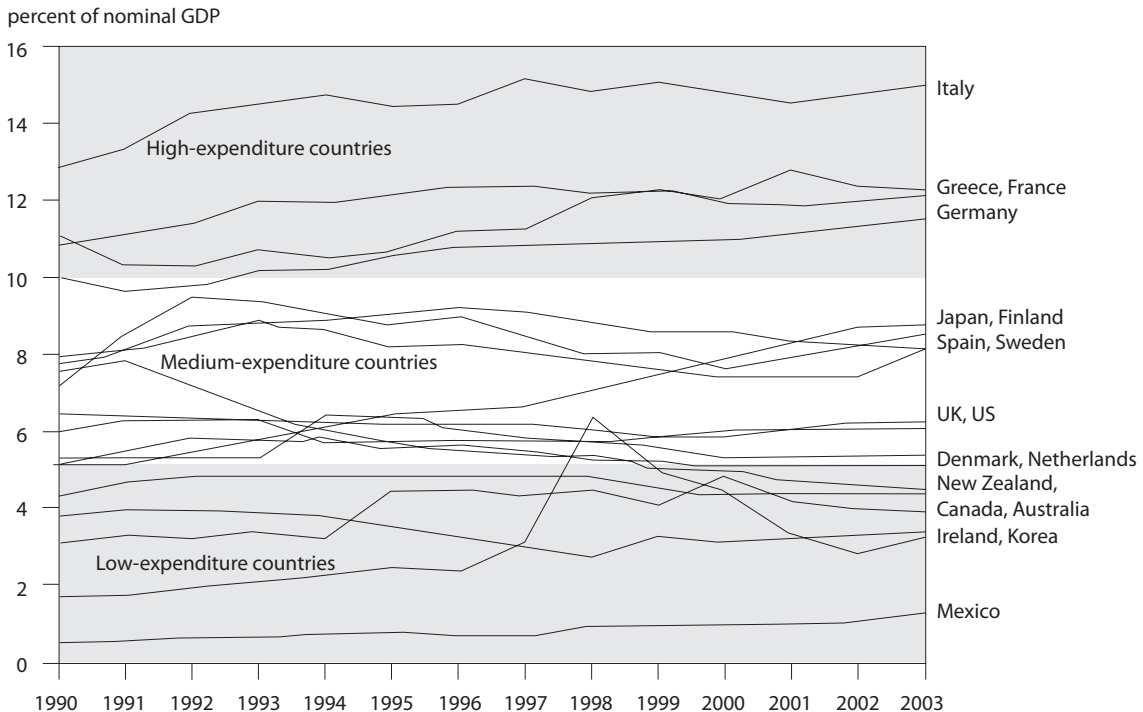
23. The data include direct public expenditure and mandatory private pension spending, which in countries such as the Netherlands may be substantial. For reasons of cross-country comparability and subsequent conversion to net expenditure status, only cash benefits are included. These make up the vast majority of pension expenditure and in a number of countries all pension expenditure. Some countries also spend public resources on "in-kind benefits" targeted to the elderly, such as residential care and home help services. However, these types of expenditures are outside the core "old age income provision" of cash benefits and are treated in an uneven accounting manner across OECD countries and are thus excluded from these data. In addition, for several countries, no data exist for private voluntary pension expenditure.

24. At least some of the expenses for disability pensions or long-term unemployment benefits constitute similar functional equivalents of old age pension spending, but these data are not immediately available. It is likely that the data on costs of public pensions presented in figure 2.3—equaling the sum of old age, early retirement, and survivor pension expenditure, but no spending on disability pensions or unemployment benefits—represent an underestimate of the true costs to the public of "primary income provision to older citizens."

25. Mexico's low pension spending reflects its far younger population compared with the other OECD countries. Korea's initially low public expenditure on pension provision is due to the broad program's relatively recent origin. Although civil servant pensions were established in 1960, the Korean National Pension Scheme (NPS) was not introduced until 1986 and became fully functional only in 1988. Initially, only a subset of Koreans was covered, although a series of reforms throughout the 1990s (mostly phased in as a result of the 1997 financial crisis) gradually expanded eligibility to near universality by 1999. See Walker (2004).

26. Cash benefit provisions rose from 1.6 billion to 5.1 billion Irish pounds in nominal terms, equaling approximately 130 percent in real (consumer price index [CPI]–deflated) terms over the period. Data are from OECD SOCX database, 2007, and the online CPI statistics database.

Figure 2.3 Total (old age + early retirement + survivor) public gross pension cash benefit expenditure, 1990–2003



Source: OECD Social Expenditure Database, 2007.

therefore never be forgotten as one great aid in dealing with the costs of an aging population. Only Japan has seen large increases over the period,[27] while several other countries, such as Finland, the Netherlands, New Zealand, and Sweden, seem already to be benefiting from early reforms to their pension systems (see chapters 4 and 6).

Impact of Direct and Indirect Taxation on Benefits

Adjusting the gross pension expenditure data for the impact of taxation is obviously important from the perspective of the pension benefit recipient, as higher taxes on benefits mean a lower level of disposable income and a lower standard of living. It is, however, also of vital importance when considering the fiscal implications of public pension expenditure. If—as is the case in two OECD countries—governments claw back in direct and indirect taxes more than half of the gross benefits they pay out to retirees, this obviously will have a large positive impact on the fiscal sustainability of such pension benefit transfers. This remains the case even if, as a result of generally progressive direct tax systems and the typically lower income of older people relative to those of working age,[28] the elderly at an individual/family unit level face a lower direct tax burden than the average population. In addition to such built-in automatic redistribution toward the elderly in progressive direct tax systems, countries have also frequently implemented direct tax benefits targeted exclusively to the older population. Comprehensive analyses by Gordon Keenay and Edward Whitehouse (2003) indicate that such targeted tax breaks toward the elderly are quite prevalent among the OECD countries.

For the purposes and level of detail of this comparative analysis, we focus on how much the tax treatment of social benefits, and particularly pension benefits, differs across OECD countries. Table 2.1 presents the differences in tax treatment for 2003.[29]

Although child benefits, housing benefits, and social assistance are generally tax exempt in the OECD, member states generally levy some kind of taxation on pension benefits, and five countries—Denmark, Iceland, New Zealand, Spain, and Sweden—actually tax pension benefits as regular

27. This is also the case in Poland and Portugal over this period.

28. See Disney and Whitehouse (2001) and Keenay and Whitehouse (2003).

29. Table 2.1 provides an aggregate OECD-wide overview of a very complex policy area. It cannot convey the level of detailed analysis required to estimate the effective tax rates facing elderly people across the OECD. The detailed analysis in Keenay and Whitehouse (2003), which considers the effects of general income tax breaks targeted to the elderly as well as the differences in tax treatment of income from public and private pensions, indicates that the relative difference in effective tax rates facing retirees versus the working population differs quite a lot among OECD countries.

Table 2.1 Tax and Social Security treatment of benefits, 2003

Country	Pension transfers (old age, disability)	Child benefits	Unemployment	Housing	Social assistance
Australia	T(reduced)	N	T(n)S(n)	N	—
Austria	TS(reduced)	N	*	N	N
Belgium	T(n)	N	T(n)	—	N
Canada	T(reduced)	N	T	—	N
Czech Republic	T(reduced)	N	N	N	N
Denmark	T	N	TS(reduced)	N	TS(reduced)
Finland	TS(reduced)	N	TS(reduced)	N	N
France	TS(reduced)	S(reduced)	TS(reduced)	S(reduced)	N
Germany	TS(reduced)	tc	*	N	N
Iceland	T	N	TS	N	TS
Ireland	TS(reduced)	N	T(n)	N	N
Italy	T(reduced)	N	TS(reduced)	—	N
Japan	TS(reduced)	N	N	N	N
Korea	T(reduced)	—	N	—	N
Mexico	T(n)	N	—	—	—
Netherlands	T(reduced) S(reduced)	N	TS	N	*
New Zealand	T	N	—	N	—
Norway	T(reduced) S(reduced)	N	TS	N	N
Slovakia	T(n)	N	N	—	N
Spain	T	N	TS(reduced)	—	T(n)
Sweden	T	N	TS	N	N
United Kingdom	T(reduced)	N	T(n)S(n)	N	N
United States	T(reduced)	N	T	N	N

T = taxes are payable; S = Social Security contributions (SSC) are payable; N = neither taxes nor SSC are levied; T(n) or S(n) = (long-term) recipients will not pay the taxes or SSC as the credits, allowances, or zero rate bands exceed the benefit level; (reduced) = reduced rate is payable for beneficiaries; tc = nonwastable tax credit; — = no specific scheme or no information available; * = benefit is a proportion of after-tax income (and thus not taxable).

Source: OECD (2007a, table 5.1).

income. This stands in contrast to the United States, which taxes pension benefits at only a reduced rate. In 1984–93, up to 50 percent of individuals' Social Security (or disability) pensions were subject to federal income tax. In 1994 the level of Social Security pension benefits subject to direct federal taxation was raised to 85 percent.[30] Equally important, OECD

30. This increase was enacted only for recipients with incomes over certain thresholds. See SSA (2008). In 2007 total OASDI income from taxation of benefits was $18.6 billion, or 2.4 percent of total OASDI income.

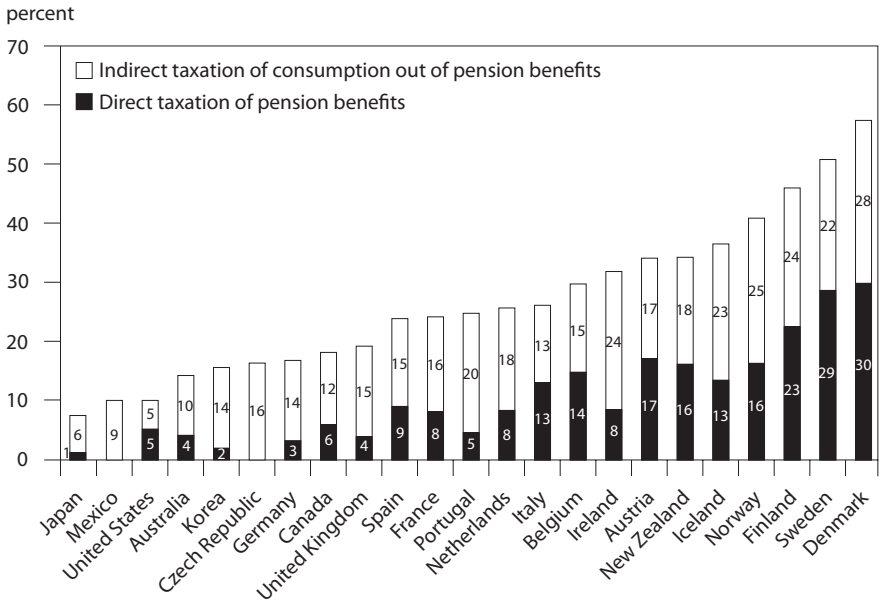
countries have highly varying levels of indirect consumption taxes, ranging from an across-the-board 25 percent in several Scandinavian countries to as low as 5 to 10 percent in the United States (depending on the type of product and the US state).

Figure 2.4 shows the differences in levels of direct and indirect taxation of consumption from benefit payments in the OECD countries in 2001.[31,32] Reflecting their generally lower tax burden (OECD 2006c), OECD countries in North America and Asia have very low total levels of taxation of pension benefits—about 10 percent in Australia, Japan, Mexico, and the United States. The United States has the lowest indirect taxation of benefits of any OECD country, but slightly higher direct taxation of pension benefit income, splitting total proceeds about in half. At the other end of the spectrum, Denmark levies a total tax of 58 percent on its pension benefit payments, ahead of the other Scandinavian countries—

31. We note that figure 2.4 presents estimated average taxation rates and that significant uncertainty surrounds these estimates. Direct taxation data are from OECD (2007e, appendix 2) and are, where available, in the form of estimated "average itemized tax rates" (AITR). AITR equal the total taxes paid by those receiving a given benefit, divided by total income from all sources of the person(s) receiving this benefit. Some benefits in some countries are tax-exempt, yielding an assumed AITR of zero. Complications arise when households receive income from several different sources/benefits, in which case total taxes paid are assumed distributed across income components according to the weights of each. Furthermore, benefit income may be subject to progressive taxation, in which case income tax paid is calculated using household tax rates for particular income levels. The data in figure 2.4 are, to the degree data availability allows, a weighted average of AITR for public and private pension income. This is necessary, as in many countries, like the United States, the AITR for public pension income is lower than for private pension income when individual recipients receive income from both public and private sources. This is because the national AITR estimate equaling the total taxes paid on public pensions/total public pension income is lowered relative to the private estimate by the fact that many more lower-income people pay lower taxes only on their public pensions in much lower-income brackets than many recipients of private pension income. For instance, in the United States, up to one half of public Social Security pension benefits is taxable if income including one half of the pension exceeds $25,000. This may increase to a maximum of 85 percent for higher-income pensioners if half of the Social Security benefits plus other income exceeds $34,000. Meanwhile, US private pension income is taxed at the capital gains tax rate of 15 percent. For a more detailed description of AITR, see OECD (2007e, especially Box 3), and for US Social Security taxation, see OECD (2005a, 187ff.)

32. Indirect taxation data in figure 2.4 equal the ratio of general consumption taxes and excise duties from benefits over private consumption plus government consumption minus government wages. It is the lowest of three from estimates of indirect taxation in OECD (2007e, table 5.2). This estimator includes some government indirect taxation income that is not paid by households and thus is likely a limited overestimate. This methodology further implicitly assumes that benefit recipients do not save anything but rather consume all their benefit income. However, as all savings are, especially among seniors, consumed at some point and the marginal propensity to consume hence in all probability very close to 1, this is a limited potential error.

Figure 2.4 Total taxation of pension benefits, 2003



Source: OECD (2007d, table 5.2 and appendix 2); authors' calculations.

Sweden with 51 percent and Finland and Norway at 47 and 41 percent, respectively. What this means is that the net public expenditure on pension provision in the Scandinavian countries is close to half the gross levels presented in figure 2.4, while that of North American and Asian countries is significantly closer to their gross levels.[33]

33. The data in figure 2.4 present pension benefits from the perspective of the government and essentially asks "how much of these benefits does the government take back again," with an eye to contemplating the fiscal sustainability of such payments. As such, the implicit distinction between gross and net pension payments is somewhat different than in much of the other pension-related literature. Typically, a distinction is made here between the gross and net replacement rates, where the former (very simplified) equals the ratio of the gross pension payment to gross preretirement wage earnings and the latter (again very simplified) equals the ratio of the pension payment and the preretirement wage after personal income taxes and Social Security contributions paid by pensioners and workers. The difference between the two ratios is equal to the difference between the bottom part of the bar in figure 2.4 and the national average wage earner tax rate for the relevant income group (not shown). In general, therefore, in such comparisons of gross and net replacement rates, no adjustment is made for the fiscal impact of indirect taxation (the white part of the bar in figure 2.4), which in several countries is substantial.

Value of Government Tax Breaks for Pensions

In addition to generating revenue via taxation of benefits,[34] governments may also "spend resources" via the tax system. This occurs through so-called tax expenditures, which can take several different forms: tax exemptions (income excluded from the tax base), tax allowances (amounts deducted from gross income), tax credits (amounts deducted from tax liability), tax relief (tax rate reduction for specific groups, such as retirees), and tax deferrals (postponement, but not elimination, of a tax payment).

The value of tax breaks with a social purpose, for pensions in particular, can be calculated in several ways (OECD 1996). The two most commonly used, and the only ones used by the Office of Management and Budget (OMB) for US federal budget analysis,[35] are the "revenue forgone method," which ex post estimates the amount by which tax revenues were reduced due to a specific provision, and the "outlay equivalent method," which estimates the hypothetical costs to the government in terms of expenditure, were it to provide the same direct benefits as generated by the "tax breaks for pensions." The former method usually gives lower results but is preferred by most countries, according to Willem Adema and Maxime Ladaique (2005), due to its relative simplicity of calculation. We therefore use this method for the data in this book.

We note, however, that some uncertainty surrounds the techniques used today by the OMB to estimate the precise values of US tax expenditures. The last time these estimations were described in detail was in OMB (1985).[36] It is thus important to emphasize that US taxes are ultimately collected on tax-benefited pension contributions (from both employer and employee) and investment gains at the time of dispersion of pension benefits. Tax exemptions for contributions made today (and the cost thereof) are therefore conceptually offset by future tax collection (see box 7.1 for an elaboration).

The extent of provision of tax breaks for government pensions is related to the scope of private pension schemes. OECD (2007e) shows that

34. If both gross benefits and taxation levels are high, tax revenues from benefits may be substantial. In Sweden and Denmark, for instance, they made up 9 to 10 percent of all tax revenue in 2004. See Eurostat (2006).

35. Each year the OMB, in accordance with the Congressional Budget Act of 1974 (Public Law 93-344), publishes a list of tax expenditures in the "Analytical Perspectives" of the president's budget. See the most recent 2007 Analytical Perspectives (OMB 2007, chapter 19). No estimates exist of the value of tax breaks offered by US state and local governments, but their aggregate value for pensions is likely small, as this policy field generally is outside state jurisdiction.

36. We are grateful to Gary Burtless for pointing this out to us in his comments on this manuscript.

the value—or cost to the government budget—of this type of tax break is more than 1 percent of GDP in Australia, Canada, Ireland, the United Kingdom, and the United States.[37] But it is unclear just how strong the stimulative effect of this type of tax break is on the adoption by private citizens and employers of voluntary schemes (see also chapter 7 on private pensions).[38] Box 2.1 explains why the nonobserved economy is close to a nonissue for pension sustainability.

Bringing the Parts Together for the Actual Net Public Pension Expenditure

Figure 2.5 combines the information on direct and indirect taxation of pension benefits from figure 2.4 as well as the value of countries' tax benefits for pensions to generate the implied truer, actual full public net pension expenditures for the OECD countries for 2003. There are three components for each country. The black lever indicates the budget gross spending on pensions—the usual measure of the cost of pensions (from figure 2.3). The white segment of the bar measures the after-tax cost of pensions (it is the bar adjusted for the amount of tax paid on pension receipts from figure 2.4). The grey of the bar captures the value of tax expenditures for retirement saving. The combined height of the bar then reflects the total net cost of pension spending, net payments plus tax expenditures, and the countries are shown ranked by the amount of this total as a percent of GDP.[39]

It is surprising to note in figure 2.5 that the US government at a combined 6.8 percent of nominal GDP spends more than any of the Scandinavian so-called cradle-to-grave welfare states of Denmark, Finland, Iceland, Norway, or Sweden, as well as significantly more than other English-speaking countries—Australia, Canada, and Ireland.[40] It is also noteworthy that for most of the countries, the total net spending is often much lower than the budget outlays on pensions. Only in Australia, Canada, Ireland, and the United States is the total level of expenditure higher than the gross value of pension cash benefit. The concluding

37. OECD (2007e) cautions that at present there is no full comparable dataset of the value of these tax breaks with a social purpose and thus includes them only as a memorandum item.

38. See, for instance, Hubbard and Skinner (1996) and Engen, Gale, and Scholz (1994).

39. However, figure 2.5 brings together data for several different economic concepts and, despite their disparities, amalgamates them into a single chart. This treatment of the data does not fully do justice to the methodological difficulties inherent in their collection and estimation. For in-depth descriptions of the methodological caveats required, see Adema and Ladaique (2005) and OECD (2007e).

40. This ranking would be influenced by the missing data for tax breaks with a social purpose for Denmark, New Zealand, the Netherlands, and Korea, as the first three have very significant private pension schemes.

Box 2.1 The nonobserved economy: Close to a nonissue for pension sustainability

An occasional explanation for the recent lag in growth performance among Mediterranean countries, in particular behind the rest of the OECD countries, is the size of the nonobserved or shadow economy—in Greece, Italy, Portugal, and Spain, for instance, it is estimated at more than 20 percent of the total economy.[1] Could this nonobserved economy serve as a resource to help make pension systems more sustainable? Such an approach could be useful, especially to the countries mentioned above, which are among those with significant longer-term problems. However, for at least two reasons the nonobserved economy represents a broad negative for pension sustainability.

The first reason concerns the five broad areas that constitute the nonobserved economy[2]:

1. *Underground production*, which according to the 1993 System of National Accounts (SNA)[3] (paragraph 6.34) covers "certain activities that may be both productive in an economic sense and also quite legal (provided certain standards or regulations are complied with) but deliberately concealed from public authorities for the following reasons:
   a) avoid the payment of income, value-added or other taxes;
   b) avoid the payment of social security contributions;
   c) avoid having to meet certain legal standards, such as minimum wages, maximum hours, safety or health standards; or
   d) avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms."
2. *Illegal production*, which according to the 1993 SNA (paragraph 3.54), if they fit "the characteristics of transactions—notably the characteristic that there is mutual agreement between the parties—are treated the same way as legal actions."
3. *Informal-sector production*, which according to the 15th International Conference of Labor Statisticians Resolution Paragraph 5(1), is described as follows: "The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. Labor relations—where they exist—are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees."

(box continues on next page)

Box 2.1 The nonobserved economy: Close to a nonissue for pension sustainability *(continued)*

4. *Household production for own use*, which includes production of crops, livestock, and other goods (such as cloth) for own use, construction of own houses, imputed rents of owner-occupiers, and services of paid domestic servants.
5. *Production missed due to deficiencies in data collection*, which covers data deficiencies arising from undercoverage of enterprises, nonresponse to surveys by enterprises, and underreporting by enterprises.

In developed economies (the focus of this book), only the first of these, underground production, has the potential size to be relevant to long-term concern regarding pensions. However, in the second reason (b) cited for such production, the SNA recognizes the explicit motivation "to avoid the payment of social security contributions." It seems straightforward to conclude that the higher such contributions generally are set, the more economic activities can be expected to migrate underground to escape them. Thus there is likely an inverse relationship between the size of the underground economy in developed economies and the size of contributions to, and subsequently the long-term sustainability of, a country's pension system. More importantly, though, any concerted effort to bring these activities into the official and fully legal economy seems destined to fail, as the underground existence is initially preferred precisely because of the extra costs of a fully legal existence. Rather than transfer seamlessly to the official legal economy, when confronted by concerted government action, most underground activities are likely to simply come to a halt. It might even be further argued that a hypothetical successful campaign that suddenly brought a lot of hitherto underground workers into an already underfunded official pension system would actually reduce its sustainability, unless there was a very close relationship in the official pension system between officially credited contributions made and benefits paid out.

A large underground production will also likely lead to suboptimal sizes of production units—producers forgo economies of scale in the attempt to remain out of sight of the authorities. Noncompetitive, noncompliant enterprises are similarly likely to remain in business longer than would be the case in a fully transparent and competitive market. Such enterprises lower overall productivity in the economy and therefore rob a country of one of the most important levers with which to ease its pension burdens.[4]

A less harmful type of "cheating the pension system," in terms of old age income security at least, occurs when retirees continue to work after retirement and thus receive salary income but do not report it to the relevant authorities to

Box 2.1 The nonobserved economy: Close to a nonissue for pension sustainability *(continued)*

avoid government means-testing of pension benefits. In countries like Australia, this has proven a substantial pension policy problem. We return to this issue in chapters 4 and 5.

Finally, it is crucial to realize that governments' tendency to deal statistically and thereby also largely macroeconomically with their nonobserved economies by simply adjusting official GDP figures (e.g., with a top-up, which in Italy, for example, is a nontrivial 15 percent of GDP[5]) does not in any way redress the adverse effects on pension sustainability. To the degree that such accounting exercises imbue governments with a false sense of accomplishment, they probably aggravate the long-term outlook.

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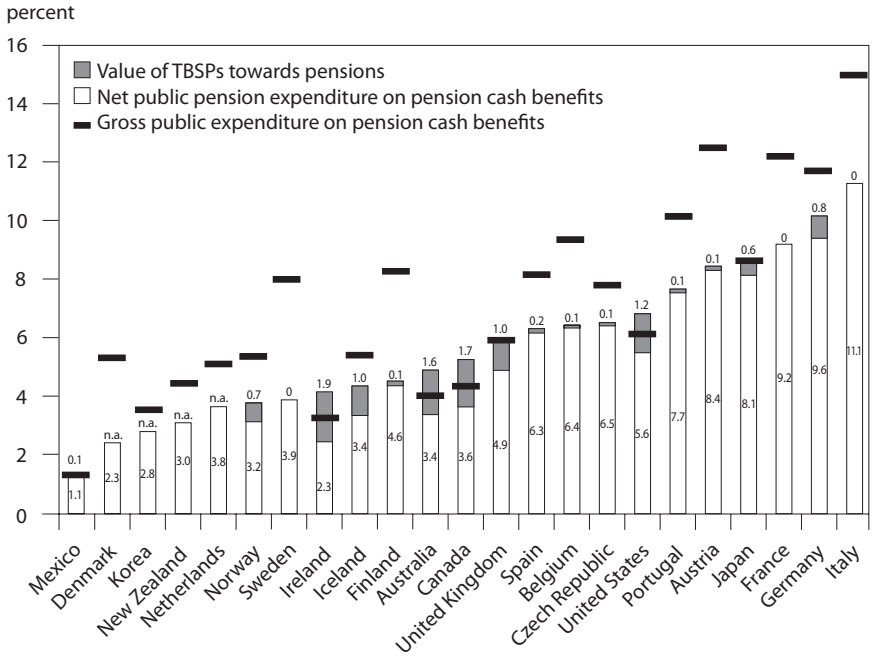
1. Estimates from Schneider (2002).
2. This breakdown is from Baily and Kirkegaard (2004). See chapter 3 of OECD, ILO, IMF, and CIS STAT (2002) for a detailed description of the nonobserved economy.
3. See UN Statistical Division at http://unstats.un.org for a description of the 1993 SNA classification system.
4. See "The Hidden Danger of the Informal Economy," *McKinsey Quarterly* 2004, no. 3, for an in-depth analysis of the adverse productivity impact of this issue, which may in some countries lower productivity by up to 50 percent.
5. Greece in September 2006 proposed to Eurostat to adjust its GDP upward by 25 percent. See the *Financial Times*, "Oldest Profession Boosts Greek Output," September 28, 2006.

statement of Adema and Ladaique (2005, 35) puts the implications of this succinctly:

> [I]t does show that observations of social expenditure levels across countries that do not account for private social benefits and the impact of the tax system are prone to be misleading. Care is needed when making statements of the form: "country X spends more than country Y"—all too often these statements are wrong.

Figure 2.5 also shows that in several countries with really high gross expenditure (Austria, Belgium, France, Italy, and Portugal), looking at the actual, full, net expenditure levels significantly diminishes the fiscal burden—by more than 2.5 percent of GDP in 2003. Hence the actual, net disparities in OECD countries' current public pension expenditures are not as large as suggested by the gross expenditure levels in figure 2.3.

Figure 2.5 Actual cost of public expenditures on pension cash benefits, 2003 (percent of nominal GDP)



n.a. = not available

TBSP = tax breaks for social purposes

Source: Authors' calculations, based on OECD Social Expenditure Database.

The possibility of taxing or not taxing pension benefits provides policymakers with an additional potent policy lever with which to adjust pension systems to accommodate both fairness and fiscal sustainability. This lever has the political advantage of potentially being of a stealthy nature—it can be buried in arcane details and thus introduced below the political radar screen but has large effects in the longer term. This is something historically not lost on US lawmakers, as, for instance, they buried deep in the Omnibus Budget Recollection Act of 1993 (Public Law 103-66) a raise in the level of Old-Age, Survivors, and Disability Insurance (OASDI) benefits subject to federal taxation for income over certain thresholds (from 50 to 85 percent) and thus reduced the degree of tax exemption for these benefits. Moreover, US lawmakers at that time decided that the increase in tax revenue derived from this additional taxation of OASDI benefits should accrue not as with the first 50 percent to the OASDI Trust Fund but rather to the far more economically stressed Medicare Federal Hospital Insurance (HI) Trust Fund; in 2007 the HI Trust Fund received $10.6 billion

in income (4.7 percent of its total income) from taxation of OASDI benefits.[41] Through the taxation of pension benefits, US lawmakers thus in 1993 devised a way to channel resources from pension provision toward the rapidly growing health care costs in the United States.

At the same time, of course, the current level of taxation in an economy plays a large role in determining the realistic size of a government's room for fiscal and taxation maneuvering. There are large differences in the total tax burden among OECD countries: As of 2003, total tax revenue in Sweden made up more than half of GDP, whereas in Japan, Korea, and the United States it was only a quarter and in Ireland and Switzerland less than 30 percent (OECD 2005b).[42] Although the public's acceptance of high levels of taxation seems significantly higher in Sweden than, for instance, in the United States, it nonetheless is highly improbable that an already high-taxation country such as Sweden or other Scandinavian countries could solve a hypothetical future pension crisis by further increasing taxation. On the other hand, before considering the domestic political climate, this seems far less true in the United States or Japan, which have far lower levels of taxation.

In summary, in this section we have illustrated that, with the adoption of a perhaps broader than usual pension sustainability focus and the inclusion of private pension assets and the tax treatment of pension benefits in the analysis, very large differences emerge among the OECD countries in terms of their respective fiscal "starting points"; adding TPATPP to general government balances improves pension sustainability in the United States more than in any other OECD country; and frequently ignored differences in the tax treatment of pension benefits among OECD countries has a very significant impact on true net government expenditures on pension benefits and tends to push up expenditures in some OECD countries (for example, in the United States) while reducing it in others.

Value of the "Pension Promise"

As we explain in chapter 3 about the distributional challenges related to pensions, the vast divergence in underpinning philosophies behind different countries' pension systems accounts for the largest part of these cross-country disparities in pension generosity. Each country's philosophy—whether the principal aim of the public pension system is to avoid abject

41. Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (2008).

42. The OECD data include Social Security taxes.

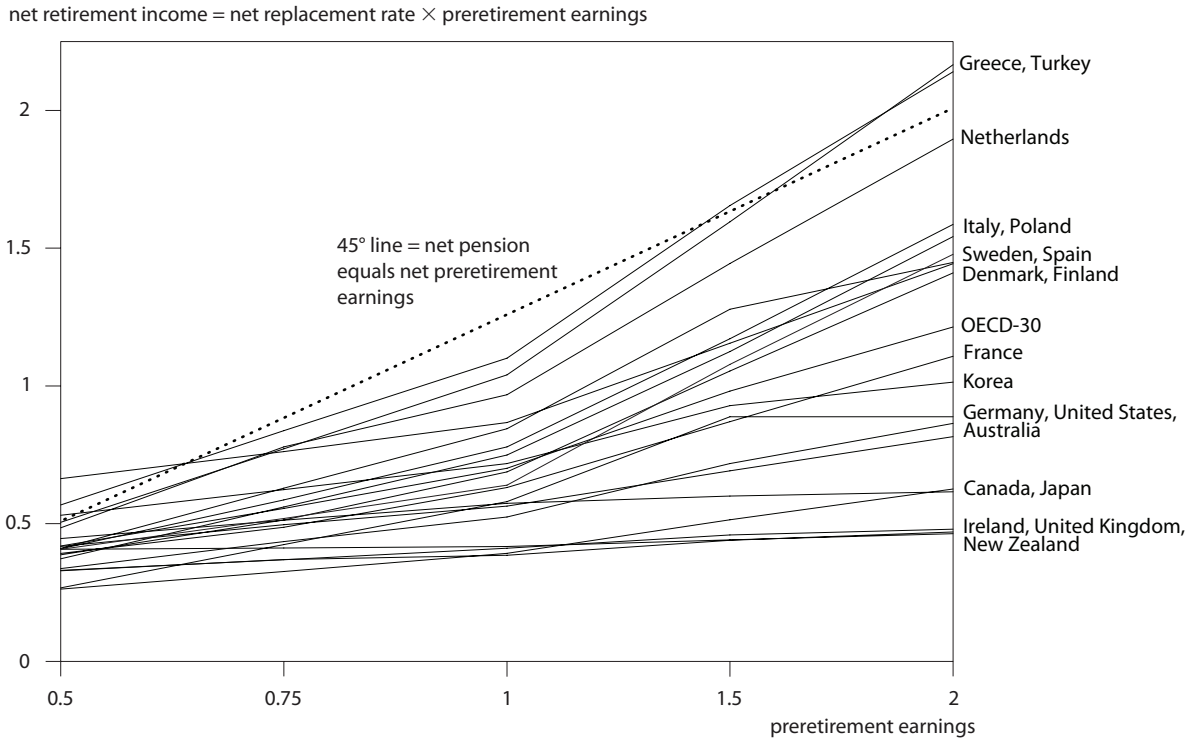
old age poverty or to sustain into old age the same living standard that insured wage earners enjoyed before retirement—makes a huge difference in the level of financial liabilities the government is likely to incur.

Figure 2.6 captures these cross-country differences in generosity by showing how retirees' net retirement income from mandatory pensions differs substantially as they move up the income distribution.[43] Retirees in countries with flat rate (or close thereto) mandatory systems, such as Ireland, New Zealand, and the United Kingdom, have net retirement income essentially unchanged across the income range (the nearly horizontal lines in figure 2.6 indicate a rapidly declining net replacement rate with the level of preretirement income). At the other extreme, retirees in countries with generous mandatory insurance-based systems, such as Greece and Turkey, have net pension retirement incomes that essentially mirror their preretirement earnings across the income range (illustrated by the 45° line in figure 2.6). Italy, the Netherlands, Poland, and some of the Scandinavian countries also have relatively high mandated retirement incomes for higher-income groups, while France closely matches the OECD average, approximately midway between matching net retirement income systems and flat rate systems, and Australia, Canada, Germany, Japan, Korea, and the United States are much closer to the flat rate systems. Few countries—most noticeably Denmark (above the 45° line on the left side of figure 2.6)—have mandatory retirement income for low-wage earners significantly above their preretirement earnings.

Mandatory pension liabilities in countries with far higher net pension replacement rates for higher-income groups are invariably far higher than in countries with flat rate systems. Increased numbers of such high-level pension recipients (i.e., those with high income and consequently high levels of private contributions during their working life) are perhaps the greatest threat to the financial sustainability of PAYGO systems. With these systems paying benefits out of the contributions of today's workers, cash flow will come under severe pressure as the number of high-income

43. These data rely on new OECD estimates using the concept of the "average worker" (AW) rather than the earlier concept of the "average production worker" (APW). This latter group included adult full-time employees (on establishment payrolls), directly engaged in a production activity in the manufacturing sector (ISIC D—Manufacturing), including manual (nonsupervisory) workers and minor shop-floor supervisory workers. Excluded were nonmanual (supervisory) workers, part-timers, and all workers outside the manufacturing sector. The new category of AW is far broader than APW and includes all ISIC sectors from C though K (mining and quarrying, manufacturing, utilities, construction, wholesale/retail/repair, hotels/restaurants, transportation, financial services, and real estate) as well as both manual and nonmanual workers. Included in both categories are all wages, cash supplements, bonuses, overtime pay, holiday pay, Christmas bonuses, and the like. This transition from APW to AW generally lowers US average wages by over 10 percent and Canadian wages by 5 percent, while boosting that of other G-7 countries by up to a third. See OECD (2003, 2004, 2005c, 2006c) for more information.

Figure 2.6 Net retirement income from mandatory pension programs, by preretirement net earnings in multiples of average wage (for men)



Source: OECD (2007a, 35).

retirees increases dramatically and, in some countries, the number of contributing workers declines.[44]

Net retirement income rates, however, matter most to individuals, as they may or may not have to adjust consumption levels to life in retirement. On the other hand, what matters to governments and their finances is not just the relative pension benefit level and retirement income measured against income in preretirement life but rather the absolute net (after-tax) level of pension benefits and the duration for which these have to be paid to individuals. In short, governments need to know the level of mandatory pensions promised to individuals.

To estimate this level, the OECD (2005a, 2007a) uses its impressive array of country pension benefit models (box 2.2) to compute a comparable number across countries for the value of the total average pension promise (diplomatically termed "pension wealth" by the OECD) to individuals in the OECD member states. These estimates are reproduced in terms of multiples of each country's average wage in figure 2.7, where the average pension promise estimate shown in figure 2.7 for each country equals the present value of the stream of pension benefit payments promised to the average future retiree, measured as a multiple of the national average earnings in 2004. (It reflects the individual promise embodied in the right to future pension receipts; it does not reflect national liabilities.) The figure shows clearly that the size of the mandatory pension promise payable to the individual differs substantially among OECD countries.

However, viewed through the lens of government finances, the estimated cross-country differences shown in figure 2.7 may, in fact, be too small. This is because the OECD, in order to produce comparable data from diverse national pension systems, had to rely on a series of simplifying assumptions, noticeably concerning the timing of withdrawal from the labor market. In its analysis, the OECD (2007a, 12) posits that people will remain in employment until the statutory full pension eligibility age—typically 65 among OECD countries.[45] But in a number of OECD countries, particularly in continental Europe, the effective age of retirement is very large (as discussed below), due to the presence of especially

44. This was the largest part of the explanation for the temporary freezing of German pension levels in October 2003, when Germany suddenly faced an estimated $11.6 billion shortfall in its PAYGO pension system. The shortfall was a result of an increasing number of retirees and—in the middle of a recession with German unemployment above 10 percent—a declining number of people contributing. We analyze this subject in more detail in chapter 3 on the distributional challenges of pensions.

45. All currently legislated rises in standard pension eligibilities are included in the OECD models. For the United States this includes the statutory rise in age from 65 to 67 for full pension eligibility.

Box 2.2 Pillars of pensions: Pension system typologies and terminology

A frequently used classification of different pension systems splits the individual national pension systems into several different subsectors, called "pillars" or "tiers." The OECD (2005a, 2007a) offers a purely descriptive pension system taxonomy, focusing on the objective for and actors in each part. The typology consists of three main tiers and a number of subtiers. The first tier is universal coverage for retirees aimed at providing a basic minimum standard of living—in the United States, this would be the means-tested Supplemental Security Income (SSI) program. The second tier consists of mandatory insurance-based programs, such as the old age provisions of Social Security. Some countries have mandatory programs that are privately administered, such as the individual account system in Chile. The third tier of retirement support includes voluntary contributory programs, such as private employer pension plans or 401(k) plans. The OECD typology is summarized in table 2B2.1. Although several additional pillar or tier-based typologies have emerged in recent years (see below), by far the largest share of relevant data concerning pensions today is structured according to the OECD typology; therefore we use this framework throughout our analyses, albeit with two caveats.

First, public pension expenditure as commonly defined includes direct government benefit expenditures, paid out under mandatory pension programs as shown in tiers 1 and 2 of table 2B2.1 (columns 1 to 4). But many governments also have significant "implicit pension expenditure" in the form of financial support (i.e., tax benefits) of other, typically privately administered, pension types.[1] As such, the distinction between the public and private segments of pension tiers is blurred. At the same time, it seems most plausible to assume that governments will ultimately be responsible for honoring the liabilities of all mandatory pension programs, even if—as is the case in, for instance, Australia, Chile, or the Netherlands—some of these are privately provided and managed. These mandatory programs make up such a large part of the pension system that a collapse due to government noninterference would be politically inconceivable, irrespective of public or private character and management. So in this book we use all mandatory programs (i.e., all of tiers 1 and 2[2]) as the base for analyzing future government pension liabilities (as is the case in OECD 2005a and 2007a).[3]

Second, several countries, such as Canada, Denmark, Germany, Japan, the United Kingdom, and the United States, have voluntary occupational schemes that cover large parts of their private workforce. This somewhat blurs the distinction between the second and third pension tiers shown in table 2B2.1

(box continues on next page)

Box 2.2 Pillars of pensions: Pension system typologies and terminology *(continued)*

(i.e., between mandatory and voluntary programs) in these countries, and determining where an individual country's system fits best may be a matter of judgment. In this book we attempt to follow the OECD typology and place voluntary programs in tier 3, but, for instance, Denmark's 90+ percent coverage of nominally voluntary programs places it in pillar 2. Pillar 3 will be the focus of chapter 7 on private and corporate pension systems.

As mentioned above, other pension plan frameworks have emerged. The World Bank in 1994 introduced its well-known prescriptive three-pillar typology, which differs from the OECD classification[4] and is briefly summarized below:

- First pillar: a publicly managed mandatory system, aimed principally at avoiding old age poverty and usually pay-as-you-go and defined benefit in character.
- Second pillar: a privately managed mandatory savings-based system, either defined benefit or defined contribution in character.
- Third pillar: a privately managed voluntary system, either individual or occupational in character.

1. The costs of occasional (and usually very expensive) ad hoc government bailouts of failing private pension plans are not included. Potential US government liabilities related to the deficit in the quasi-public Pension Benefit Guaranty Corporation (PBGC) are thus not counted as part of US public pension expenditure.
2. Column 5 in table 2B2.1 shows the private segments of the second tier.
3. Throughout this book, we provide information on the US SSI program and include it in the general analysis where relevant. However, the SSI program is materially different from the US Social Security (OASDI) program, and unless otherwise noted, the latter is the focus of our analyses.
4. The International Labor Office has also published a prescriptive three pillar–based pension system typology. See Gillion (2000).

early retirement programs.[46] At the same time, in other OECD countries—notably Japan and Korea—the effective age of withdrawal from the labor market is substantially above the official retirement age, indicating that the period during which individuals collect their pension is significantly

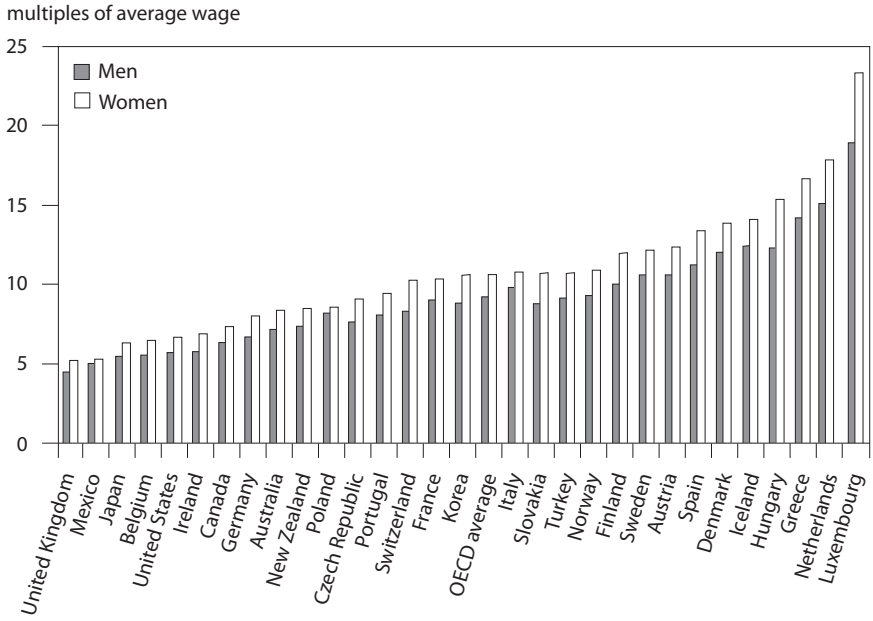
46. Effective retirement age refers to the average age at which persons at 40 and older left the labor force.

Table 2B2.1 OECD typology of pension systems

First tier: Universal (mandatory) coverage, aimed at redistribution and poverty alleviation			Second tier: Mandatory insurance-based programs		Third tier: Voluntary insurance-based pension provision schemes	
Public sector			Public sector	Private sector	Private sector	
Resource/means tested	Basic pension	Minimum pension	Defined benefit/defined contribution	Defined benefit/defined contribution	Occupational	Individual
Systems that pay higher levels of benefits to poorer retirees and lower (or even no) benefits to well-off retirees. Depends on income sources and assets. An example is US Supplemental Security Income. Old age income security may also be achieved through similar programs available to entire population.	Flat rate pension systems (Ireland and New Zealand); pension benefit depends only on years of residency (not past earnings).	Systems that guarantee that retirees with few years of contributions to second tier insurance based systems receive a minimum pension. Usually benefit levels are determined based only on pension income and not on assets or other income. Example is the UK Pension Credit System.	Mandatory defined benefit, notional defined contribution, or points systems that provide benefits toward ensuring a sufficient living standard, based on number of years of contributions and a measure of individual earnings. Example is US Social Security.	Mandatory defined benefit schemes may also be private (as in the Netherlands), while defined contribution schemes provide each retiree with an individual account in which contributions are invested. Accumulated capital provides pension income. Example is Australia's Superannuation Scheme.	Voluntary occupational (or employer-provided) schemes may be either defined benefit or defined contribution. Examples are US auto-industry defined benefit plans or US 401(k) plans.	Voluntary individual retirement plans may be defined benefit or defined contribution, and in the United States include IRAs, Keogh, and Roth plans.

Sources: OECD (2005a, 2005b, 2007a); authors.

Figure 2.7 Average mandatory pension promise, as a multiple of average wage, 2004



Source: OECD (2007a).

lower than the standard retirement age would indicate. Including in the estimation process these differences in effective retirement ages—which, while strictly outside the mandatory pension promise methodology, have direct implications for government finances—would undoubtedly raise promise levels substantially for many European countries (but decrease them dramatically for others, such as Japan)[47] and further amplify the cross-country differences in the full retirement income promise granted to individuals.

Even so, in figure 2.7 there are striking cross-country differences in the generosity of the mandatory pension promise, especially considering the relatively equal general wealth levels among the majority of OECD member states. Mandatory pension promises range from a total value of five

47. See chapter 4 on the labor market challenge for a discussion of the Japanese notion of the working retiree, where many workers continue to work while receiving a corporate pension.

times the average earnings in the United Kingdom to more than 20 times the average earnings in Luxembourg.[48]

Prominent in figure 2.7 is the fact that the United States, together with Belgium, Ireland, Japan, Mexico, and the United Kingdom, has a very low level of pension wealth relative to earnings. Other English-speaking countries, such as Australia, Canada, and New Zealand, are also relatively low, as are Germany and Poland. These countries have pension wealth in the range of 5 to 8 times earnings, compared with 10 to 15 for most of the European countries.

The figure shows that the pension promise made to women is higher than for men. This finding may seem surprising, as it has been frequently documented that women have lower pensions than men, due to their shorter periods in the labor force.[49] The results in figure 2.7 are predominantly driven by unisex assumptions. The methodology employed assumes wages between the sexes are equal and that all people remain in the labor market throughout their working lives until the effective age of retirement. In addition, there is no adjustment for women's prolonged periods of absence from the workforce in conjunction with childbirth or family care duties. The generally larger estimated pension promises made to women, as shown in figure 2.7, are overwhelmingly driven by the longer life expectancies of women.

But why are there such large differences across countries? The answer lies in the large differences in generosity of pensions for higher-earning groups (toward the upper right part of figure 2.6). Cross-country differences in life expectancy at age 65 are only a minor factor, as are those in the levels of pensions provided to lower-income groups. The left half of figure 2.6 shows that pension levels for lower-income ranges are much closer to one another across the OECD than at higher levels.[50]

Although the comparison here does not have a direct policy implication, it is nonetheless of considerable policy interest. Certainly, for the United States adding the length of time spent receiving benefits to estimate the total mandatory pension promise reinforces the conclusion that the US Social Security system is not particularly generous by international comparisons. Moreover, this section indicates that most countries, should they be compelled to improve the sustainability of their pension systems through benefit cuts, ought to focus on mandatory pensions paid to the higher-income groups.

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48. Expressing pension wealth relative to earnings provides a more valid comparison of the magnitude of the public pension liabilities relative to the wealth level of a given country than would be the case for the absolute values of pension wealth.

49. See, for instance, IWPR (2007). Women are frequently also tied as dependents to their husband's plans. We elaborate on this issue in chapter 7 on private pensions.

50. See appendix 2B for an elaboration.

The Demographic Outlook

Whether you're a brother or whether you're a mother, You're stayin' alive, stayin' alive. Feel the city breakin' and ev'rybody shakin' And we're stayin' alive, stayin' alive. . . .
—Bee Gees, *Stayin' Alive*, 1977

The megatrend that is probably most likely to shape the fiscal challenges to future pension systems is the rapidly growing size of aging populations in all developed countries. We have so far examined governments' fiscal starting points, the impact of taxation on pension expenditures, and the sizes of individual pension promises, which are all important components. However, many would probably argue that they pale in importance compared to changes both in the number of retirees and in the number of workers available to support them in the coming decades. Population aging and the higher ratio of retirees to workers affect every country examined in this book. As with other issues, though, not all countries are alike and the severity of the problem varies quite a bit: Some countries are facing the potentially far more serious issue of a future where the number of workers is not merely growing less rapidly, as in the United States, but instead will soon be declining outright in absolute terms.

In the final part of this chapter we argue that while population aging is obviously important, it is not the only factor determining the pension outlook. In fact, aging will be fiscally devastating only if it is combined with poor economic policies and unsustainably low actual retirement ages. To illustrate this important point, we explore the differences between old age support ratios that are purely demographic and old age support ratios that take into consideration also the age at which people actually retire and leave employment.

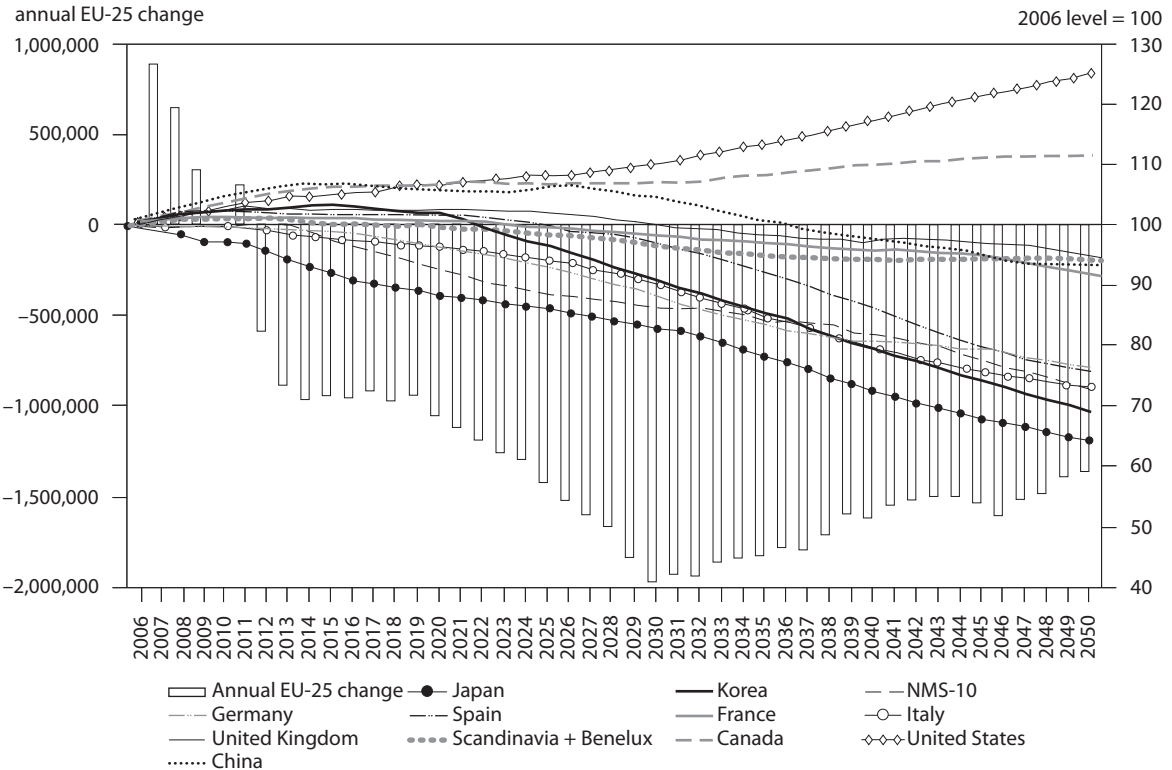
Three main long-term issues affect the quantity of a country's workforce: fertility, immigration, and effective retirement age. We analyze them in the next sections, following a discussion of the outlook for the working age population (i.e., potential maximum labor force) for the OECD countries shown in figure 2.8.

Outlook for the Size of the Workforce

Countries such as the United States and Canada are, based on recent levels of immigration,[51] projected to continue to experience labor force

51. All data in figure 2.8 are national statistical agencies' "medium projections," which typically rely on recent years' immigration levels to estimate future inflow. Given the current political discussions concerning immigration, particularly in the United States, there is some question as to whether historical levels of immigration will continue in the United States.

Figure 2.8 Working-age population (15–64 years) in selected OECD countries, 2006–50



NMS = new EU member states

Sources: Eurostat 2004 Demographic Database; US Census Bureau; Statistics Canada; Japan National Institute of Population and Social Security Research (2002).

growth, although at reduced rates (indeed, Canada will stagnate completely toward the end of the projection period). North America (and other OECD countries like Australia or New Zealand with broadly similar projections) will therefore experience the aging process largely from increases in the number of retirees, not from labor force declines. Other countries, however, are less fortunate.

The bars in figure 2.8 indicate the annual absolute changes in the EU-25 potential labor force (i.e., ages 15–64) from 2006 projected to 2050. The labor force continues to grow for another few years until 2011, after which it drops precipitously by 1 million to 2 million workers a year from 2013 on for the duration of the projection period. As a comparison, the entire Irish potential workforce in 2006 was 2.8 million workers: In other words, the equivalent of that entire workforce will disappear from the EU-25 every two to three years.

However, figure 2.8 also illustrates the vast differences within the European Union. Indeed, the majority of the old members—the Benelux, France, Ireland[52] (not shown), the three Scandinavian EU countries (Denmark, Sweden, and Finland), and the United Kingdom—face only stagnating or modestly declining potential workforces aged 15–64, dropping by about 5 percent by 2050. Far more serious is the situation for Germany, the Mediterranean countries of Italy and Spain, and the new member states (NMS-10),[53] all of which can expect to see their potential workforces decline by 25 percent by 2050. These sharp differences indicate just how unevenly the demographic challenge is distributed even within the European Union. However, the North Asian economies of Japan and Korea face the biggest declines—up to fully 30 percent—in their workforce populations.

For comparison purposes, figure 2.8 includes China, where the working age population is projected to start declining by about 2020. China falls in about the middle of the pack of OECD countries.

Given the large diversity of projections among the OECD economies, and the significant implications of the future of the labor force for the sustainability of pensions, it is worth looking at the reasons for the diversity and whether government policies can or should try to change behavior. There are two main contributors to the diversity of projections: (1) fertility, which drives the size of the native-born population, and (2) immigration.

52. Ireland has a uniquely young age profile in the European Union, and, due to this and a current reversal of earlier periods' emigration from the country, its potential labor force growth is projected to be comparable to Canada's until 2050.

53. The ten new EU member states are Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

Fertility and Workforce Size

The general decline in total average fertility (i.e., the total number of children born, on average, per woman in her lifetime) in recent decades is half of the demographic pincer affecting developed economies (we examine the other—increasing life expectancies—in chapter 3). However, while total average fertility in all OECD countries has fallen below the replacement rate of 2.1,[54] both the trajectories of this decline and the levels today vary significantly.

As can be seen in figure 2.9, OECD countries fall into two main groups in terms of their total fertility since 1970.[55] One group of countries, including Germany, Greece, Italy, Japan, Korea, and Spain—call them "the constant decliners"—saw large declines in fertility in the 1970s and early 1980s and have since continued a steady decline to very low levels of 1.1 to 1.4 children per woman in 2004. Fertility in the other group—France, Ireland, the Netherlands, the Scandinavian countries, and the United States—also declined rapidly in the 1970s and early 1980s (the Netherlands and Denmark were the lowest-fertility countries in 1982) but then started to recover and by 2004 was between 1.7 and 2.04 children—the highest-fertility country being the United States. These are "the recoverers."

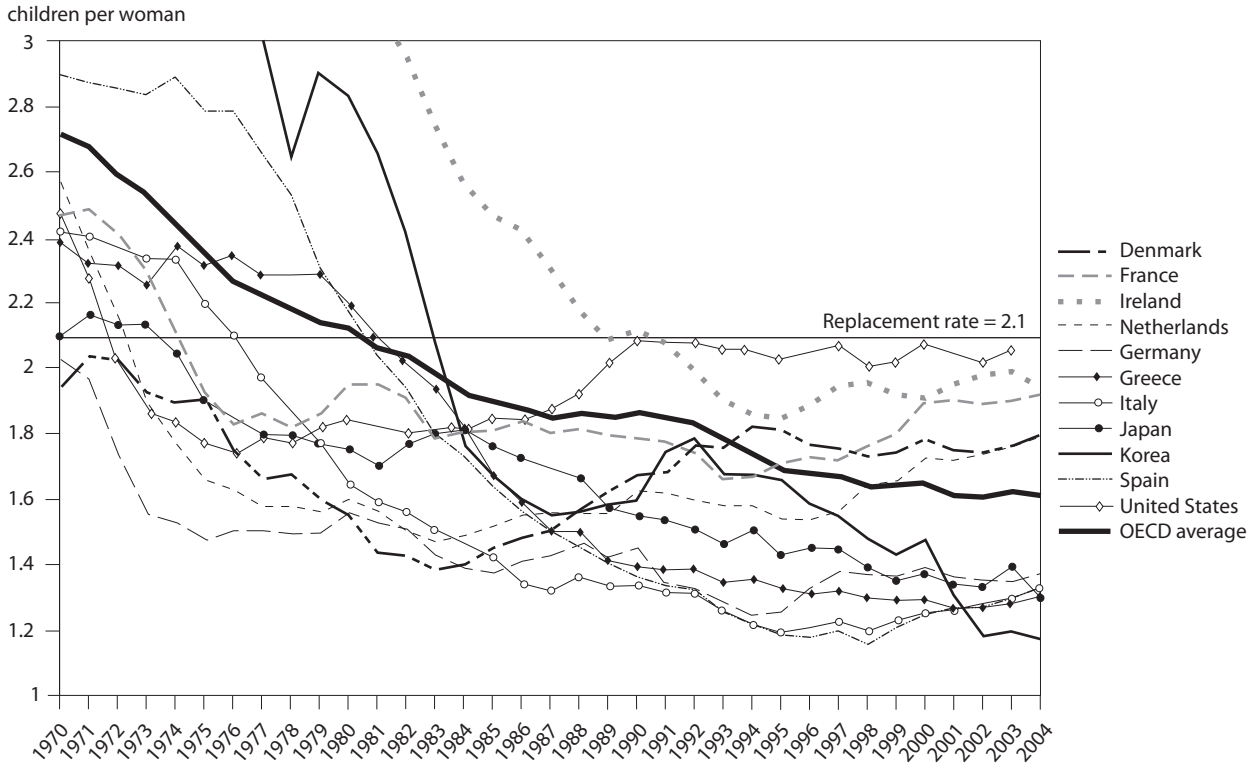
While figure 2.9 shows that declines in fertility are not irrevocable, it is useful to consider what types of government policies—in liberal democracies, at least—might feasibly be utilized to raise total fertility (see box 2.3). Moreover, for the purposes of this chapter, the more pertinent question is whether policies to raise fertility levels would really do much for the sustainability of public pensions.[56] Even if a silver bullet government policy for raising fertility levels were found tomorrow, it would take a quarter of a century—when additional workers would enter the labor force—for any impact, and even then the size of that impact is questionable. The example of South Korea is illustrative: It is the country in figure 2.9 with the lowest total fertility in 2004, at 1.19. Even if South Korea managed to reverse its decline in total fertility and in future decades approached what the UN Population Division estimates is the long-term

54. This is not just an OECD country phenomenon, as the United Nations lists more than a third of the world's countries (58 countries out of 172 with reported data in the *Human Development Report 2006*) as, on average, below this level during 2000–05. See UN Development Programme data at http://hdr.undp.org/statistics.

55. We have omitted several countries from figure 2.10 to make the chart readable. Those not included fall between the two groups described in the text in terms of their 2004 total fertility levels and as such represent intermediate observations, which can for purposes of illustration be ignored here.

56. See appendix 2C for a discussion of the infeasibility of offsetting rising pension costs with lower education expenses resulting from the reduction in population growth.

Figure 2.9 Total fertility in selected OECD countries, 1970–2004



Source: OECD Health Database, 2005–07.

Box 2.3 Government policies to raise total fertility levels: What seems to work

The 20th century has understandably made many uncomfortable with blatantly pronatalist government policies among the OECD countries. On the other hand, the decline in OECD fertility levels since 1970 had by 2003 convinced 11 OECD member states to adopt policies to raise their fertility levels.[1] It is clear that in the long term, fertility levels do matter.

It has long been established that in developing countries there is a very strong negative correlation between fertility levels and women's educational attainment and/or work-outside-the-home of women.[2] Unfortunately, this finding can lead to the conclusion that there is a policy-relevant trade-off involved between the two. While this may be the case for the developing world, the fact is that in the developed world, not only is there no trade-off but also the correlation is completely reversed. Indeed, as can be seen in figure 2B3.1, in the rich world OECD[3] mothers tend to both work and get a university degree!

Figure 2B3.1 plots for the early 2000s the average total fertility levels of women as a function of both the share of women with a university-level degree (left side) and the employment ratio for women in their child-bearing years (25–54). In both cases, the correlation is positive and statistically significant.[4]

We distinguish between inter- and intracountry differences in fertility levels. It is the case generally that more educated women have fewer children than those with less education (D'Addio and Mira d'Ercole 2005), but these intracountry differences are dwarfed by the cross-country differences, indicating that other country-specific circumstances (and possibly policies) play the biggest role in determining fertility levels.

One aspect of child bearing that has gone hand in hand with the decline in fertility rates is the rise in the age of first-time mothers. In the United States, this age has risen to over 25 (up from 21 in 1970), and it is over 28 in most of Europe and about 30 in Australia and New Zealand.[5] Policies aimed at boosting total fertility levels should, therefore, strive to ensure that postponement of childbirth does not become abandonment of it.[6] Clearly, governments should target such policies toward the needs of women close to or into their 30s.

Several empirical studies surveyed by D'Addio and Mira d'Ercole (2005) indicate that the availability and low cost to the user of child care facilities has a large and positive effect on fertility rates,[7] while high costs have a negative impact. Given the findings in Immervoll and Barber (2005) that the share of infants (age 0–2) in OECD countries who are in registered child care[8] varies from two-thirds

(box continues on next page)

Box 2.3 Government policies to raise total fertility levels: What seems to work *(continued)*

(in Denmark and Sweden) to about 5 percent (in Greece, Italy, and Spain), and that the total net costs of child care range from about 10 percent of average family income in Germany, Scandinavia, and (interestingly, given the low participation) Greece to more than half in Ireland, this seems to be an area of possible straightforward government policy intervention.

Other empirical work indicates that financial cash benefits are effective, although it is not always clear how much the effects result from changes in timing rather than overall family size.[9] Again, this could be a relatively easy government intervention without, presumably, any negative externalities.

A number of studies further show that higher unemployment rates and increased income uncertainty for women lower fertility rates.[10] This finding would seem verified by figure 2B3.1, which by using employment (rather than labor force participation) rates explicitly includes national differences in unemployment rates. A well-functioning labor market, in other words, seems to have a positive spillover effect in terms of fertility levels—something government policies obviously should strive to act on.

In summary, while policy options are clearly available to governments wishing to raise fertility levels, none of them seem to work in anything other than the (very) long term.

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1. These are Austria, the Czech Republic, France, Greece, Hungary, Japan, Korea, Luxembourg, Poland, and Slovakia. Except France and Luxembourg, fertility levels in all these countries were below 1.5 in 2003, indicating limited results from such policies. In addition, the governments of Italy, Norway, Portugal, Spain, and Switzerland had the official view that their fertility levels were too low but did not implement policies to address the issue. Compiled from the UN World Population Policies, 2003 (D'Addio and Mira d'Arcole 2005). Since 2003, Australia has instituted a A$4,000/child bonus payment, which according to preliminary results has been quite effective in at least bringing forward childbirths in Australia. See AFP (Sydney), "Baby Bonus Boosts Australia's Birthrate: Government Data," September 16, 2006.
2. See, for instance, UN Population Division (1996, 2004).
3. The two lowest-income OECD members, Mexico and Turkey, are excluded from this figure.
4. The *p*-values shown are for a two-sided hypothesis test of no correlation between the two variables.
5. Data are from national statistical authorities.
6. The fertility data that we used are estimated by taking the ratio of the number of births in a given year and the average annual number of women of reproductive age (15–49). If there is indeed significant postponement of childbirth within an age cohort, there may also be cyclical swings in total fertility rates. Initially upon postponement, total fertility

Box 2.3 Government policies to raise total fertility levels: What seems to work *(continued)*

levels would overestimate the decline in long-term levels, while later a period of recuperation would bring these levels back up. Evidently, however, prolonged periods (i.e., several decades) of very low levels of total fertility, as seen in figures 2.9 and 2.10, make such later recuperation very unlikely. On the other hand, some studies show that for France, longer-term cohort fertility is close to stable (Toulemon and Mazuy 2001, Ní Bhrolchaín and Toulemon 2002).

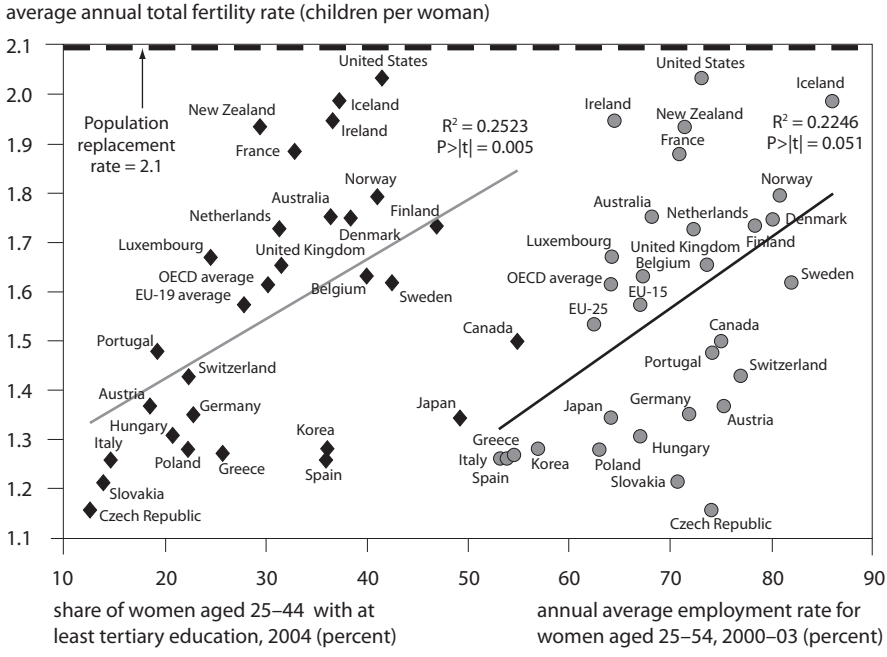
7. See Blau and Robins (1988, 1989), Del Boca et al. (2003), and Ermisch (1989).

8. Including both full-time and part-time care, licensed center-based care, and registered child minders/residential care.

9. See Cigno (1994), Ermisch (1988a,b), Whittington (1992), Zhang et al. (1994), and Laroque and Salanié (2004).

10. See Gauthier and Hatzius (1997), Kravdal (2002), and Adsera (2004).

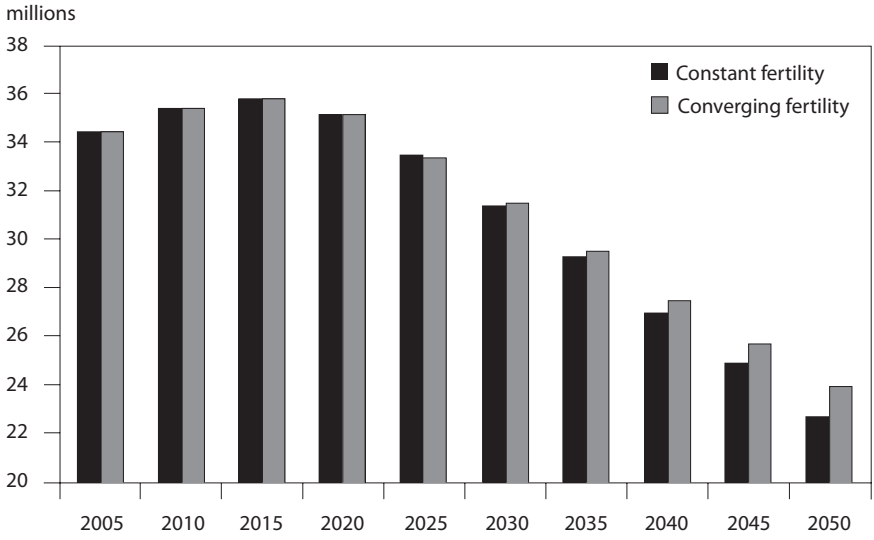
Figure 2B3.1 Fertility, women's educational attainment, and employment, 2000–04



Note: Age group 25–44 is weighted average of the 25–34 and 35–44 age groups.

Sources: OECD *Society at a Glance,* 2005; OECD (2006b); OECD Labor Market Database.

Figure 2.10 South Korea's workforce (15–64 years) under different fertility scenarios, 2005–50



Source: UN Population Division (2004).

convergence point—a total fertility level of 1.85 children per woman[57]—this convergence point would still be below the replacement rate of 2.1. The data illustrated for all the countries in figure 2.9 suggest that the world's population will go into decline in the medium to long term.

Figure 2.10 shows the trajectories of the working age population in South Korea from 2005 to 2050, with the fertility level either constant at the current low values[58] or rising gradually toward the global convergence point. As can be seen, there is no difference in the two until after 2025, and even at the furthest extension of these projections, in 2050, the difference is less than 1.2 million workers, or about 5 percent of the constant work-

57. See the assumptions for the UN *World Population Prospects* at http://esa.un.org/unpp. The value of 1.85 derives from the experience of all countries with declining fertility from 1950 to 2005. Due to the very low total fertility level in South Korea in 2004, according to the UN estimates, even with ongoing convergence, the country would not reach 1.85 by 2050 but only 1.77 children per woman in the period 2045–50.

58. The UN World Population Database's assumptions operate in five-year intervals and thus the fertility level, which is kept constant in the black bars in figure 2.10, is the average estimated fertility of the 2000–05 period of 1.23. See the assumptions for the UN *World Population Prospects* at http://esa.un.org/unpp.

force. Put another way, the realistic change[59] from rising total fertility levels in South Korea even by 2050, when estimating potential old age support ratios (i.e., the ratio of the total 15–64 and 65+ age cohorts), is an improvement from 1.47 with constant fertility until 2050 to 1.55 with converging fertility levels until 2050.[60] Thus the realistic gains for South Korea—the OECD country with the most to gain from rising total fertility levels in coming decades—amount to a mere second-decimal improvement in the straight population old age support ratio by 2050.

Put in perspective, this extremely limited potential impact of rising total fertility levels—and only after 2025—should be compared with, for instance, the Standard and Poor's (2006) projections, which estimate that (with unchanged policies) the vast majority of OECD countries will be speculative-grade credits already by 2040. Thus, for the OECD as a whole, the time is long past for policy options to influence the fiscal challenges of aging populations by raising the total fertility rate and policymakers should look to other areas for the necessary policy tools to deal with this issue.[61]

Immigration and Workforce Size

An obvious way to increase the size of a country's labor force is through immigration. Bringing in more and younger workers from outside the country and employing them productively in the domestic economy will have a direct and immediate positive effect on old age support ratios and on fiscal sustainability more broadly. There may be many reasons why it is beneficial for countries to facilitate immigration, but for our purposes it is important to point out the limitations of immigration as a solution to the problem of the long-term outlook for pensions.

While the impact of immigration on the fiscal challenge will likely be positive,[62] it will not generally have more than a small quantitative impact, except in the United States. A simple numerical exercise can illustrate this. How many new immigrants of working age would be required

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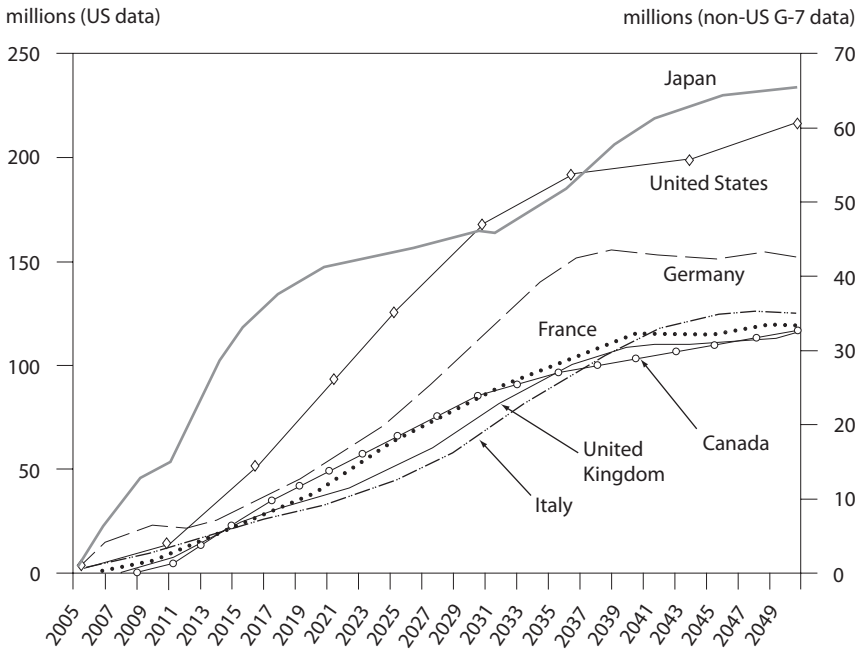
59. "Realistic" here is defined as the trajectory of rising fertility estimated by the UN Population Division, based on historical data. This, of course, does not rule out historically unprecedented rises in South Korean fertility levels, due to possible new and innovative government policies.

60. All other assumptions for mortality, other vital events, and immigration levels are kept similar for the two scenarios. Only fertility levels differ.

61. This, of course, does not rule out that governments may for other good reasons wish to raise their fertility levels.

62. This positive outcome cannot be assured if, for instance, as in many European countries, immigrants exhibit far lower labor force participation and far higher unemployment rates than do native residents.

Figure 2.11 Cumulative number of new work permits/immigrants needed in the G-7 to stabilize old age support ratio at 2005 level, 2005–50



Sources: Eurostat Medium Population Forecast 2004 Base Year; US Census Bureau; Statistics Canada (scenario 2); Japan National Institute of Population and Social Security Research (medium variant); authors' calculations.

in a country to stabilize the old age support ratio at the 2005 level? "Prohibitively many" is the short answer. Figure 2.11 presents the estimates for just how many additional working age immigrants would be required cumulatively in the G-7 nations to stabilize the 15–64/65+ population ratios at 2005 levels until 2050.[63]

63. For the sake of the heuristic value of the longer-term results in figure 2.11, the assumption is that additional immigrants do not stay beyond their 64th year and, therefore, do not add to the denominator of the old age support ratio. Without this assumption, estimates quickly lose even their heuristic value. If, for instance, a realistic assumption of age distribution for new arrivals in the age category of 15–64 is adopted, and these arrivals are allowed in the projections to remain into their retirement and hence increase the number of retirees, the required number of new immigrants at working age to maintain the fixed ratio grows to absurd levels. Coleman (2006) provides estimates showing that the British population under such assumptions would grow to more than 300 million by 2050 and that the entire population of the world would need to move to South Korea to stabilize the South Korean old age support ratio at its (admittedly still high) 2000 level.

All the population projection scenarios used for figure 2.11[64] assume a positive level of net international immigration, thus the figure presents only the additional number of working age immigrants required. This is most important in the case of the US data, which—based on recent historical data for both legal and illegal immigration to the United States—assume net immigration rates of almost 1 million annually until 2025 and then rising to 1.1 million by 2050.[65]

Figure 2.11 shows that for the G-7 countries to have the same individual straight population old age support ratios by 2050 as in 2005—i.e., to effectively stop the aging process of G-7 populations—460 million additional immigrants would be needed, with the United States alone accounting for 217 million.[66] Immigration at this level is not going to happen. And it is not just in the long term that immigration is an untenable policy solution to aging populations; the number of new immigrants needed in the G-7 to stabilize the 2005 support ratios by 2010 is a staggering 37 million, most of whom would be needed in Japan.

One might argue that a requirement to stabilize the old age support ratio at present levels is far more than would, ceteris paribus, be required to guarantee the future sustainability of a pension system and thus sets far too high a bar for immigration to have the necessary positive effect. On the other hand, figure 2.11 illustrates "additional immigrants needed" in excess of the G-7 levels of recent years. We believe that any sustained numerical expansion in the total number of immigrants entering the G-7 above that of the early 2000s will prove politically problematic. Thus it is crucial to understand that increased immigration does not provide a policy answer to aging societies, at least in purely quantitative terms, as there may be room for governments to raise the average skill levels of immigrant populations and thus positively affect long-term economic growth and fiscal trends (Hanson 2005, Kirkegaard 2007).

The 2003 report of the Technical Panel on Assumptions and Methods to the Social Security Advisory Board (TPAM 2003) further illustrates the

64. US Census Interim Projections, based on 2000 Census; Eurostat Medium Population Projections; Statistics Canada Scenario 2 (www.statcan.ca); and Japan National Institute of Population and Social Security Research Medium Forecast.

65. See assumptions for Interim Projections of the US Population, based on the 2000 Census, at the US Census website, www.census.gov/ipc. The assumptions for net migration levels are different in US Census projections and the projections of the US Social Security Trustees (see below).

66. The United States and Canada are penalized by this type of estimate for not being so far into their aging process in 2005 as, say, Japan; their old age support ratio is, therefore, fixed at a considerably higher level—5.4 and 5.3 in the United States and Canada versus 3.3, 3.4, 3.6, 4.0, and 4.1 for Japan, Italy, Germany, France, and the United Kingdom, respectively. This, in turn, requires far more new immigrants to stabilize the US and Canadian support ratio levels.

relatively minor impact of immigration levels on long-term pension sustainability. The panel very sensibly recommended that the Social Security Trustees fundamentally change their assumptions regarding net migration levels for the long-term projected outlook for the Social Security Trust Fund. Rather than using current immigration law as the foundation for deriving a plausible assumption of a fixed level of future migration, the board recommends using a net migration rate based on US historical experience relative to the size of the US population.

Previously, the Social Security Trustees assumed, based on current US immigration laws, that net immigration levels would decline at a fixed rate from 2003 levels of 1.2 million to 900,000 by 2023 and remain flat thereafter for the remainder of the projection period. Instead, the Technical Panel recommended that the Trustees increase significantly their assumptions of future levels of net international migration so that the intermediate cost scenario includes increasing annual levels of net migration. The annual number of net immigrants would thus increase at half the rate of population growth until the net migration rate declined to its historical average value of 3.2 per 1000, after which, by holding the net migration rate constant, the level of net immigration would grow at the same rate as the total US population.

This is a sound suggested change of migration assumptions that would remove some of the probable downward bias in the migration figures used in the Trustees' current long-term estimates. It raises the assumed intermediate scenario US total population by 24 million by 2050 to 413 million.[67] Although this is a substantial change (about equal to the population of Texas in 2006), it has a very limited impact on the long-term sustainability of US Social Security. The Office of the Chief Actuary at the Social Security Administration estimated that implementing this change would cut the long-term Social Security deficit by just 5.7 percent and defer exhaustion of the Social Security Trust Fund by merely two years, to 2044.[68] Thus this reasonable suggestion to change the formula used to describe the future of the Social Security system would not greatly alter the estimates of the underlying fiscal problem.

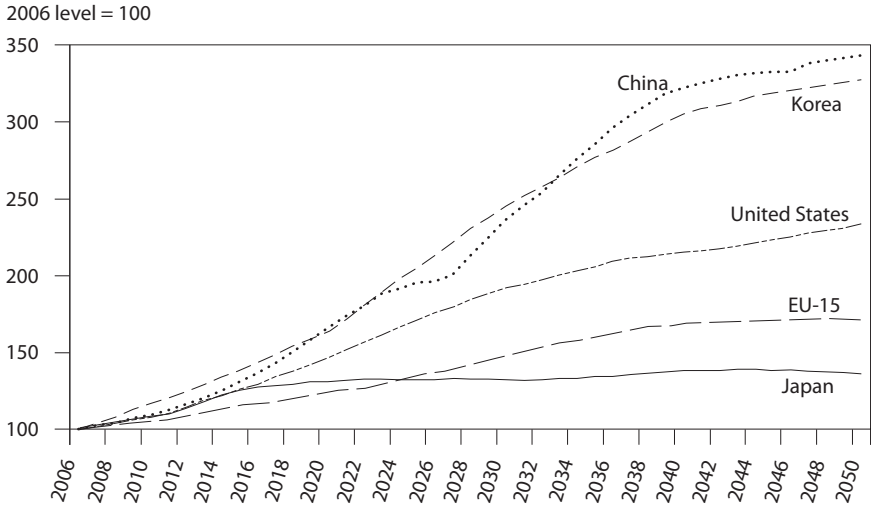
Outlook for the Number of Older (65+) People

The fact that developed-country populations are getting older, on average, is a sign of progress and improved welfare but also a source of additional pressure on many public services in the years ahead. Thus the denomina-

67. And by 50 million, to 471 million, by 2080.

68. All data are from TPAM (2003).

Figure 2.12 Population aged 65+, selected OECD countries and regions, 2006–50



Sources: Eurostat 2004 Demographic Database; US Census Bureau; Statistics Canada; Japan National Institute of Population and Social Security Research (2002).

tor of the ratio of working age people to those over 65 is rising. Figure 2.12 shows the data for OECD countries' populations aged 65 and older. The lines show the sizes of the elderly populations as of 2006 (set equal to 100) and illustrate the growth of this population group up to 2050.

Japan is the country with the smallest projected increase in the number of residents 65 or older. This striking projection reflects the fact that the aging of Japan's population is already significantly progressed—the share of the elderly in the Japanese population is already above 20 percent, compared with only 12 percent in the United States and 17 percent in the EU-25. As a result the absolute number of elderly in Japan is projected to be roughly stable after 2020, whereas in the EU-25, elderly population growth will stabilize only in the 2040s. In terms of broader sustainability, this is again only a partial result—even a stable number of retirees may be unsustainable with a rapidly declining number of people to support them—but nonetheless gives an indication of the timing of the demographic pressure on other types of old age–related expenditures, most noticeably health and long-term care. The relatively stable number of old people in Japan after 2020 points to somewhat reduced expenditure pressures in this sector after that—a trend less likely to occur in the United States, which as a result of its generally rising population will continue to

see its absolute number of elderly rise throughout the period.[69] On the other hand, even the United States will not experience anything like the increase in the absolute number of elderly that will occur in relatively late aging countries such as China and Korea, which are both projected to experience more than a tripling of their 2006 numbers by 2050.

Toward the end of the projection period, the number of people 65 and older in America will have more than doubled to about 85 million, while the number of elderly in Japan will rise only by about a third to approximately 35 million. The aggregate EU-15, the new member states, and most individual EU members will see growth of about 75 percent in the number of elderly residents by 2050.

In summary, we have illustrated in this section that changes in either fertility levels or immigration laws will not offer much respite against the accelerating aging of populations across the OECD. At the same time, however, we have shown the considerable dissimilarity among nations' projected intensity in the effects of aging; in terms of working age populations—for example, the United States and Canada will continue to experience increases, while European and Asian OECD members will see substantial declines. Simultaneously, Japan, already far into its aging process, will see substantially smaller increases in the absolute number of elderly than will European countries or the United States. Thus the extent and degree of determinism in the fiscal deterioration implied by demographic trends is very different across the OECD. Indeed, as we illustrate in the following section, in some OECD countries, the behavioral impact from differences in effective retirement ages will matter more to the likely overall fiscal impact than the aging process itself.

Understanding the Impact of Looking at Effective Retirement Ages

In the preceding section we showed the differences between the projected scenarios in the OECD for both working age labor forces (15–64 years old) and elderly populations (65 and older). As mentioned, the sizes of these two populations are frequently combined in the old age support ratio to yield an indicator of how many supporting workers a country has per

69. However, by far the largest share of future increases in US health care expenditure for the elderly (Medicare) is expected to result not from the rise in the absolute number of retirees but rather from the rapid above-GDP growth rate in increases in expenditures per individual beneficiary. See CBO (2007b). See also Kotlikoff and Hagist (2005) for estimates that show the United States facing the largest challenge in medical expenditure of 10 OECD countries surveyed.

benefit-receiving retiree. Projecting this ratio into the future is a useful tool when trying to highlight the future effects of population aging but does not provide a good basis for cross-country comparisons. The ratio can be misleading—because in some countries not everyone under 65 is working, while in other countries everyone over 65 is necessarily retired—and therefore does not provide a sound basis for policymaking or discussion. Thus population aging is not everything.

In this section we explore what happens when the focus is on when people actually withdraw from productive employment, i.e., on the OECD differences in effective retirement age and how they affect the "real" old age support ratios.

Statutory and Effective Retirement Ages in the OECD

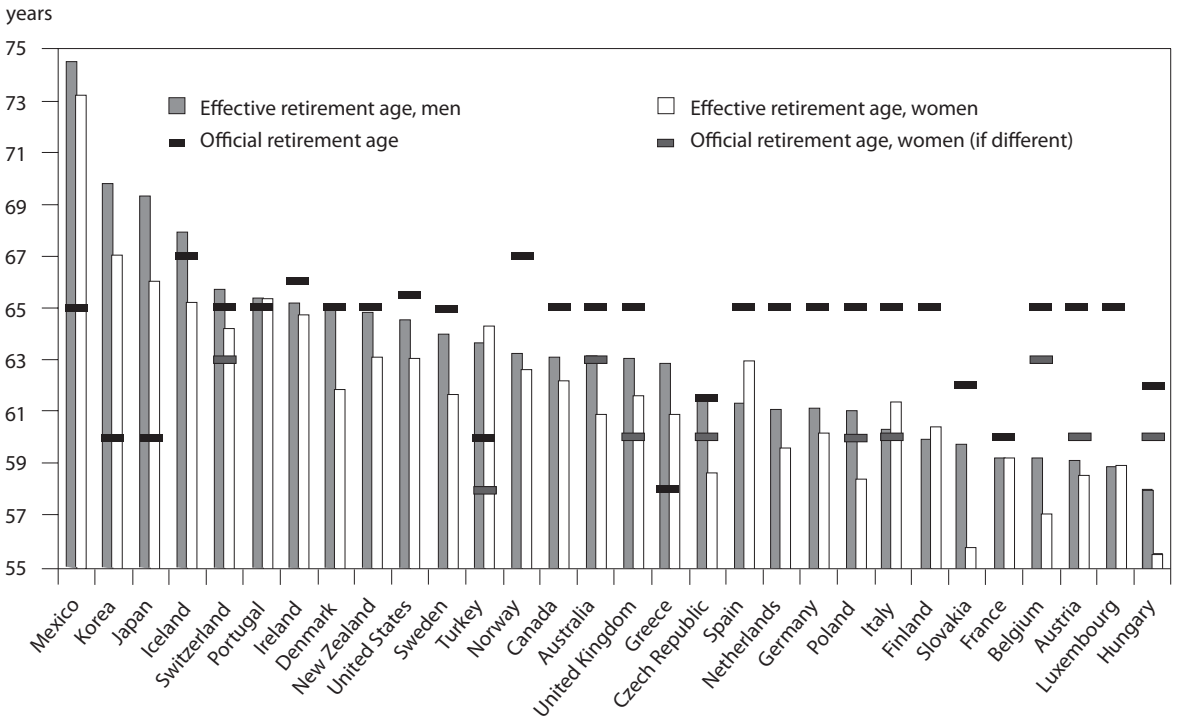
As mentioned earlier, countries' potential workforces are typically defined as the age group between 15 and 64,[70] reflecting the OECD's current median statutory full pension eligibility retirement age of 65. Most countries base their retirement plans and regulations on this age (or something close to it). There are a few exceptions to the rule, such as France, Greece, Japan, Korea, and Turkey, where the standard retirement age is significantly lower. The United States is increasing its statutory retirement age above 65, and Iceland, Ireland, and Norway also already have retirement ages above 65 (see chapter 4).

As noted earlier, however, the *effective* age of retirement in many OECD countries is frequently very different from the *statutory* retirement age. Figure 2.13 shows both the standard retirement age by country and the actual retirement age for men and women from 1999 to 2004.[71] In three countries, Japan, Korea, and Mexico, the effective retirement age is much higher than the official age. In ten countries the effective age is close to the official age. But for about half of the OECD countries the effective retirement age is substantially lower than the official age. For the United States, the gap is small for men, but women retire about 2½ years

70. See, for instance, the OECD Labor Market Database (www1.oecd.org/scripts). This is not uniform, however. For instance, the US BLS Current Population Survey—thanks to US child labor laws—defines the labor force as those age 16 or older. These alternative definitions among countries frequently make a significant difference, given the relatively low participation among workers 65 and older. For example, the US labor force participation for the age group 16 and above in 2004 was 66 percent, while for the age group 15–64 it was 70.8 percent, or nearly 5 percentage points higher. Data are from OECD and BLS Current Population Survey (http://data.bls.gov).

71. Effective retirement age is defined as the average age at which a person over age 40 left the labor force in 1999–2004.

Figure 2.13 Effective and official retirement ages in the OECD, 2004



Note: Effective retirement age refers to the average age at which persons 40 and older left the labor force during 1999–2004. Official retirement age refers to the earliest age in 2004 at which workers are entitled to full old age pension irrespective of contributions and work history.

Source: OECD (2006d, figure 2.4).

earlier than the official age of 65–66 (the age for receipt of full Social Security benefits).

The diversity of official and actual retirement ages across countries tells us that comparing simple old age dependency ratios (the population aged 65 and over compared with the working age population aged 15–64) gives a misleading picture. For example, Japan is experiencing a large drop in the working age population over time, but because the Japanese retire roughly a decade later than, say, the French, this allays Japan's demographic problem.

Early retirement has an impact on the fiscal challenge facing countries because most people who leave the labor market after age 55 will be on government-supported programs of one kind or another (disability pensions, sickness payments, or unemployment benefits or similar programs).[72] In many OECD countries there are financial penalties on people that retire earlier than the statutory age for receipt of a full pension,[73] but from the perspective of government treasuries, these early retirees represent a fiscal liability similar to that of a regular full pension retiree above the statutory retirement age.[74]

An important exception applies to the United States with respect to the provision of health care. Because the US government, unlike all the other OECD governments with universal health care systems, does not provide health care benefits for the general population until age 65, combined with the reduced early retirement Social Security benefit (see chapter 3), the direct additional financial liability for the US government from early retirements is likely smaller than in many other OECD countries.

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72. Large country differences exist, with fully 12 percent of all Swedes in their late 50s not working due to incapacities and a remarkable 43 percent of similarly aged Italian women not working due to family responsibilities (traditional family patterns apparently disappear very slowly). Similarly, several countries—most noticeably France and Germany—have no work-search requirement for older unemployed persons, meaning that from the perspective of the individual, there is probably no difference between being unemployed or retired.

73. These are typically similar to the US Social Security rules stipulating that Americans born before 1937 who retire at 62 rather than 65 suffer a permanent 20 percent reduction in their benefits, a penalty that rises to 30 percent for Americans born after 1967. See the Social Security Administration website, www.ssa.gov. Queisser and Whitehouse (2006) provide an overview of these benefit reductions for early retirement in the OECD.

74. In many countries with contribution-based systems, workers entering the labor market early can retire substantially earlier than age 65 with a full pension and with no financial penalties. This will serve to equate from the perspective of the government the cost levels of retirees above or below age 65. We elaborate in chapter 3 on the distributional challenge and in chapter 4 on the labor market challenge.

Impact of Effective Retirement Age

An increase in a country's effective retirement age has a double effect—it both raises the number of people paying into the pension system and simultaneously lowers the number of people drawing from the pension system. A quick illustration using data for France and Japan shows the dramatic extent of this. (For illustrative purposes, to highlight the differences between the sexes in terms of life expectancies and effective retirement ages, we discuss the impact for men and women separately, although this gender distinction does not make sense in terms of broader pension sustainability.)

The straight population ratio of 15–64/65+ for French men and women in 2006 was 4.9 and 3.4, respectively, while in Japan it was 4.1 for men and 2.9 for women.[75] Thus it may seem that France today is in a somewhat better position than Japan with respect to shouldering its pension burden. However, after adjusting the data to reflect the average effective retirement ages of a little over 59 for French men (59.3) and women (59.2), and of 69.3 for Japanese men and 66 for Japanese women, these results change materially. Now the true effective old age support ratio of roughly 15–59/60+[76] in France declines to 3.3 for men and 2.5 for women, while in Japan the approximately 15–69/70+ ratio for men rises to 6.1 and the 15–66/67+ ratio for women goes up to 3.2. The true effective old age support ratio for Japanese women is now almost equal to the corresponding ratio for French men, while that for Japanese men is roughly twice that for French men. Japan looks better able to support its elderly population than does France by this more economically relevant measure.[77]

To further illustrate the relative impact on sustainability ratios both from aging itself (i.e., what is expected to happen because of aging from now until 2050) and from current differences in effective retirement ages (i.e., how far the effective retirement age is from age 65), we now combine the two measures.

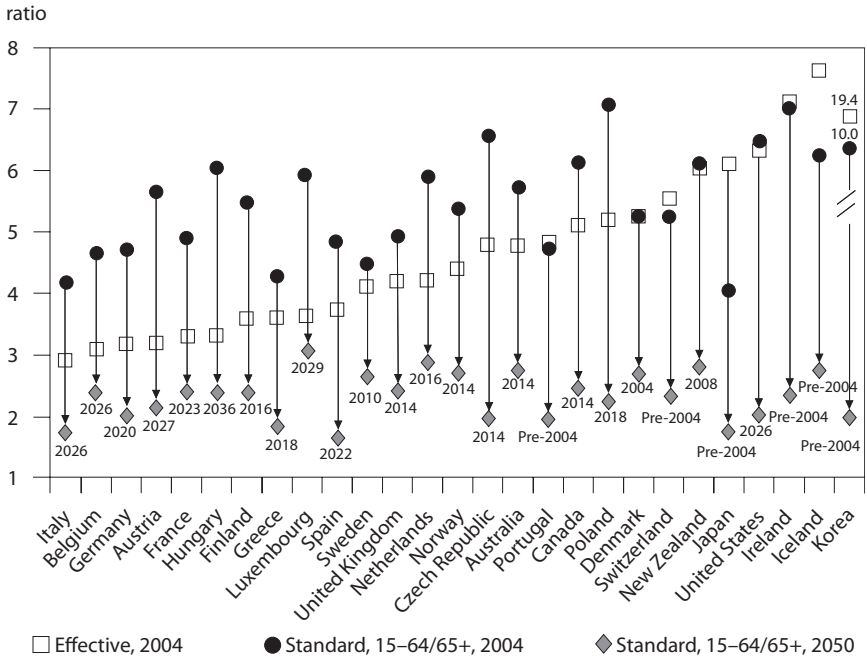
Figures 2.14a and 2.14b show, first, the standard old age support ratio (circles) in 2004 based on the 15- to 64-year-old population (numerator) and the 65+ population (denominator) and, second, the projection of this ratio in

75. The longer life expectancy of women depresses their old age support ratio.

76. Individual years are split proportionally between the groups, so that for the effective retirement age of 59.3, 30 percent of the French men aged 59 go into the ranks of workers and 70 percent are deemed retirees. A similar methodology is used for Japanese data.

77. With average US retirement ages for men of 64.6 and 63 for women, this corresponding adjustment does not yield nearly the same magnitude of difference between the old age population ratio and the effective ratio in the United States.

Figure 2.14a Standard old age support ratios, 2004 and 2050, and effective old age support ratio, 2004, men



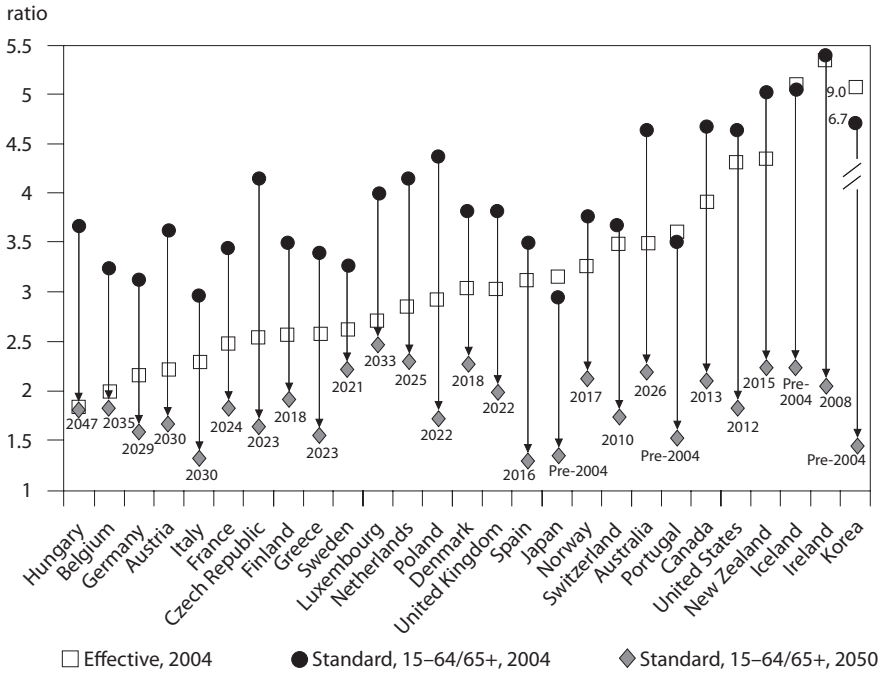
Sources: Organization for Economic Cooperation and Development; US Census Bureau; Eurostat; Statistics Canada (2005–51); authors' calculations.

2050 (diamonds). It then ranks countries by the effective old age support ratio in 2004 (squares).[78] In light of the large differences in effective retirement ages between the sexes, each is shown separately for illustrative purposes (figure 2.14a for men and figure 2.14b for women).[79] Finally, to show the relative importance of aging itself and of current low effective retirement ages, we indicate the year that each country, based on projected pure

78. The effective support ratio is calculated using the most detailed age group data available. Intra-interval values are estimated assuming uniform distribution within each interval, i.e., an effective retirement age of 62.5 means that the number of people aged 62 are split 50-50 between the numerator and the denominator. A similar procedure is used for the few countries for which only five-year age cohort data are available.

79. The straight population old age support ratio for women is lower than for men, especially in 2004, because of women's higher life expectancy. As life expectancy for men is expected to rise more than for women in coming decades, the difference between men and women is projected to be smaller in 2050 than it was in 2004.

Figure 2.14b Standard old age support ratios, 2004 and 2050, and effective old age support ratio, 2004, women



Sources: Organization for Economic Cooperation and Development; US Census Bureau; Eurostat; Statistics Canada (2005–51); authors' calculations.

demographic trends[80] from the 2004 starting point[81] of straight population ratios, should reach the same ratio as, in true effective terms, its current ratio.

The figure shows that a number of core continental European countries, such as France, Germany, and Italy, have effective ratios much lower than the pure population ratios. Indeed, they are in some cases already close to the level projected for their population ratios in 2050. They are

80. These trends differ substantially in terms of the speed, precise timing, and magnitude for the countries in question. Each country is estimated according to its own nonlinear (typically accelerating toward the end of the period) trajectory, and thus the relative graphic distances in figures 2.14a and 2.14b between the circles, squares, and diamonds are not representative of how far into the future the effective ratio is.

81. All 2004 population data used in this book are from actual census estimates of present-day country populations, rather than earlier population estimates including 2004 data or population estimates for longer periods. As individual countries' regular censuses frequently reveal unsuspected developments in population sizes and characteristics, this is an important distinction if one wishes to achieve a maximum of reliability and validity in the data used for analysis.

therefore—in real terms—already decades further into their aging process because of their current exceptionally low effective retirement ages. This issue is most pronounced for countries with very low retirement ages for women, such as Hungary and Belgium.

However, this process works in the other direction, too. Several countries frequently labeled demographic basket cases (most noticeably Japan) are in real terms not nearly as progressed in their aging process, thanks to their very high effective retirement ages, as their pure population old age support ratios would suggest.

Adjusting the support ratio does not make much of a difference for the position and outlook for the United States itself, which has an effective retirement age close to 65. However, as most of the other OECD countries look significantly worse in true effective terms, the relative US position on this important statistic is improved.

Accounting properly for effective retirement ages has a dramatic impact on the relative severity of the demographic challenge. In many respects, because raising the effective retirement age works on both sides of the equation (boosting the denominator while lowering the numerator), several European countries (such as France and Italy) face as much a current employment challenge—simply getting more people to remain in the labor market longer—as they do a future demographic challenge. Their demographic future has already arrived.

In contrast, countries with better current employment records for older workers, such as the United States and Japan, are at a substantial advantage and reap a clear advantage from their job-generating labor markets. Meeting the challenge of an aging population is much easier for countries with later effective retirement ages, so many countries should look to policies that reduce disincentives for employment (see chapter 4).

Synthesis of Fiscal and Demographic Challenges

This chapter has attempted to shed light on the most decisive aspects of the fiscal and demographic challenge facing (most) developed countries today. It has done so by looking at (1) starting points in terms of government finances and prefunded pension assets, (2) tax treatment of pension benefits, (3) actual net costs to governments of current pension provision, (4) the generosity of average individual pension promises, (5) the demographic outlook for the labor force, (6) the demographic outlook for the number of elderly, and (7) effective retirement ages across the OECD, which in many places alter the aging outlook substantially.

Table 2.2 amalgamates the information in this chapter for the main OECD countries analyzed and points out the most significant fiscal and

Table 2.2 Synthesis of selected OECD countries' fiscal and demographic challenges

	Fiscal starting point			Cost of pension provision			Demographic outlook			
Country	Net debt levels	Structural position	Overall	True costs of current public pension provision	Generosity of individual pension promise	Labor-market effect: Effective retirement age	Labor force	Elderly	Overall demographic outlook	Overall impact level/most threatening aspects
Australia	None	Surplus	Strong	Moderate	Moderate/low	Low	Rising	Rapid rise	Moderate pressure	Moderate impact/low retirement age
Austria	Moderate	Limited	Limited	High	High	Extremely low	Decline	Moderate rise	Moderate pressure	High impact/high pensions and low retirement age
Belgium	Severe	Surplus	Moderate	Moderate/ high	Moderate	Extremely low	Stable	Moderate rise	Moderate pressure	High impact/poor fiscal starting point and low retirement age
Canada	Limited	Surplus	Strong	Low	Low/moderate	Low	Rising	Rapid rise	Moderate pressure	Moderate impact/low retirement age
Czech Republic	None	Severe	Moderate	Moderate	Moderate	Low	Severe decline	Moderate rise	High pressure	High impact/low retirement age and demographic outlook
Denmark	None	Surplus	Strong	Low	Moderate	Average	Stable	Moderate rise	Moderate pressure	Moderate impact/ demographic outlook
Finland	None	Surplus	Strong	Moderate	High	Extremely low	Decline	Moderate rise	High pressure	High impact/low retirement age and demographic outlook

France	Moderate	Moderate	Moderate	High/ moderate	Moderate	Extremely low	Stable	Moderate rise	Moderate pressure	High impact/low retirement age and cost of pensions
Germany	Moderate	Moderate	Moderate	High	Moderate	Low/extremely low	Severe decline	Moderate rise	High pressure	High impact/low retirement age and demographic outlook
Greece	Severe	Severe	Severe	n.a.	High	Low	Severe decline	Moderate rise	High pressure	Very high impact/low retirement age and demographic outlook
Hungary	Moderate	Severe	Severe	n.a.	High	Extremely low	Severe decline	Moderate rise	High pressure	Very high impact/low retirement age and demographic outlook
Iceland	None	Surplus	Strong	Moderate	Moderate	High	Stable	Moderate rise	Moderate pressure	Moderate impact/ demographic outlook
Ireland	None	Surplus	Strong	Low/ moderate	Low	Average	Rising	Rapid rise	Moderate pressure	Moderate impact/ demographic outlook
Italy	Severe	Moderate	Severe	High	High/moderate	Extremely low	Severe decline	Moderate rise	High pressure	Very high impact/low retirement age and cost of pensions
Japan	Severe	Severe	Severe	High	Low	High	Severe decline	Limited rise	Moderate pressure	High impact/fiscal starting point
Korea	n.a.	n.a.	n.a.	Low	Low	High	Severe decline	Rapid rise	High pressure	High impact/ demographic outlook

(table continues next page)

Table 2.2 Synthesis of selected OECD countries' fiscal and demographic challenges *(continued)*

	Fiscal starting point			Cost of pension provision			Demographic outlook			
Country	Net debt levels	Structural position	Overall	True costs of current public pension provision	Generosity of individual pension promise	Labor-market effect: Effective retirement age	Labor force	Elderly	Overall demographic outlook	Overall impact level/most threatening aspects
Luxembourg	n.a.	n.a.	n.a.	n.a.	High/extreme	Extremely low	Rising	Moderate rise	Moderate pressure	Moderate impact/low retirement age
Netherlands	Moderate	Limited	Limited	Low/ moderate	High	Low	Stable	Moderate rise	Moderate pressure	Moderate impact/low retirement age
New Zealand	None	Surplus	Strong	Low	Low	Average	Rising	Rapid rise	Moderate pressure	Moderate impact/ demographic outlook
Norway	None	Surplus	Strong	Low	Moderate	Low/average	Stable	Moderate rise	Moderate pressure	Moderate impact/ demographic outlook
Poland	n.a.	n.a.	n.a.	n.a.	Moderate	Extremely low/low	Severe decline	Moderate rise	High pressure	Very high impact/low retirement age and demographic outlook
Portugal	Moderate	Severe	Severe	n.a.	Moderate/high	Average	Severe decline	Moderate rise	High pressure	Very high impact/fiscal starting point and demographic outlook

Slovakia	n.a.	n.a.	n.a.	Moderate	Moderate	Extremely low	Severe decline	Rapid rise	High pressure	Very high impact/low retirement age and demographic outlook
Spain	Moderate	Limited	Limited	Moderate	High	Low	Severe decline	Rapid rise	High pressure	Very high impact/low retirement age and demographic outlook
Sweden	None	Surplus	Strong	Moderate	High	Average	Stable	Moderate rise	Moderate pressure	Moderate impact/ demographic outlook
Switzerland	Limited	Surplus	Strong	n.a.	Moderate	Average/high	Stable	Moderate rise	Moderate pressure	Moderate impact/ demographic outlook
Britain	Moderate	Moderate	Moderate	Moderate	Low	Low	Stable	Moderate rise	Moderate pressure	Moderate impact/low retirement age
United States	Moderate	Moderate	Moderate	Moderate	Low	Average	Rising fast	Rapid rise	Moderate pressure	Moderate impact/ demographic outlook

n.a. = not available

Source: Authors' estimates, based on various sources.

demographic challenges to individual countries. Several main points are clear from table 2.2:

- The overall situation among OECD countries varies considerably, with the most severe impact focused on a minority of countries. In close to half (13) of the 28 OECD countries shown, the relative future impact of aging populations on pension systems is in the least severe "moderate impact" category, while eight countries face "high impact" and seven countries "very high impact" (Greece, Hungary, Italy, Poland, Portugal, Slovakia, and Spain).
- The United States—with only a moderately poor fiscal starting point, moderate current costs of pension provision, low levels of future pension promises, average retirement age, and only moderate demographic pressure (both a growing labor force and rising numbers of elderly)—is in the category of OECD countries that can expect to be only moderately affected. This is an important point when trying to filter the occasionally overly gloomy commentary regarding the outlook for the US economy and its future ability to provide for its retiring baby-boomers.[82] Most OECD countries face more immediate and severe future challenges to the sustainability of their pension systems than does the United States.[83] Awareness of these challenges has in recent years already led to a number of pension reforms in OECD countries (see chapter 4).
- In some countries, notably in Eastern Europe and the Mediterranean, pension liabilities pose the most severe threat, due to the combination of generous pension promises, low retirement age, and very adverse demographics.
- The eight countries facing the most severe impact of population aging do so more as a result of their extremely low effective retirement ages than their demographic outlook.
- The English-speaking countries (Australia, Canada, Ireland, New Zealand, the United Kingdom, and the United States), the Scandinavian countries (Denmark, Iceland, Norway, Sweden, and, less so, Finland), and the Netherlands generally face only a moderate impact on pension systems from future population aging.

82. This overall ability to potentially provide for the elderly may not prevent distributional problems from arising.

83. This is not the case in other policy areas affected by population aging, especially health care costs, where the United States probably faces the biggest cost challenge of any OECD country.

- The core continental economies (Austria, Belgium, the Czech Republic, France, and Germany) face a high impact of population aging on pension systems, and a very high impact is likely in Eastern and Southern Europe (Greece, Hungary, Italy, Poland, Portugal, Slovakia, and Spain).
- The very high effective retirement age in both Korea and Japan partly makes up for (in Japan) a very poor fiscal starting point and (in Korea) a poor demographic outlook. Northeast Asian OECD countries can expect significant future stress on their pension systems in the future, but not nearly as much as would be the case with a lower age of retirement.

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