CHAPTER III

FISCAL IMPROVEMENT IN ADVANCED ECONOMIES: HOW LONG WILL IT LAST?

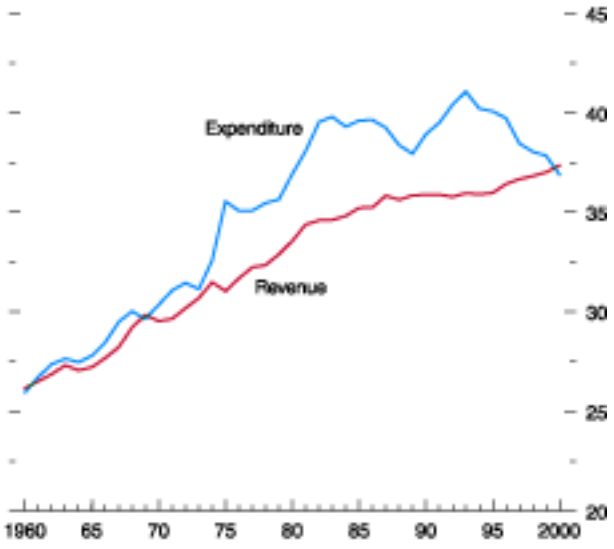
Countries around the world have significantly improved their fiscal positions since the early 1990s. This development has been particularly striking in the advanced economies, where several countries have attained sizable surpluses for the first time in nearly half a century (Figure 3.1).[1] This chapter describes the forces behind these gains and the challenges that lie ahead.

A defining characteristic of the recent fiscal adjustment is that it has been based primarily on expenditure restraint. Revenue rose as a share of GDP in the 1990s, but, compared with the role of spending, its contribution to fiscal adjustment was much less than during similar efforts of the 1980s. Instead, the emphasis in many countries, particularly in Europe, has been on changing the tax structure, shifting from direct taxes on labor and capital income toward indirect taxes. Furthermore, recent fiscal developments have been accompanied by widespread reforms directed at strengthening fiscal frameworks. These include measures focused on debt ceilings and deficit targets, on expenditure rules, and on the transparency of fiscal management.

Several factors may have underpinned this general strengthening of fiscal positions and fiscal institutions. The government's role in the economy expanded during much of the twentieth century, both in producing goods and services and, especially, in providing transfer payments.[2] In the 1980s and particularly the 1990s, however, many countries appeared to change their view, preferring a more limited role of government. In part, this change may reflect concerns about the extent to which government could ameliorate the effects of market failure and improve the distribution of

Figure 3.1. Fiscal Trends in OECD Countries
(Percent of GDP)

Fiscal balance in advanced economies has been restored for the first time in a generation.



Sources: OECD Analytical and Economic Outlook Databases; and OECD Historical Statistics.

[1]See Chapter IV of this *World Economic Outlook* for some discussion of fiscal developments in emerging markets.

[2]The evolution of the role of government in the twentieth century was reviewed in Chapter V of the May 2000 *World Economic Outlook*.

income. In addition, there may have been increased recognition of potential distortions arising from high rates of taxation and from public sector competition for economic resources, including the financing needed to support ongoing deficits. Competitive pressures from the growing international integration of goods and capital markets, together with generally lower rates of inflation, may have further constrained government's ability to raise taxes, monetize deficits, and build up public debt.

A key issue looking ahead is whether this recent fiscal adjustment will endure or whether—as in the 1980s—it will be reversed during a future economic slowdown. There is some reason for optimism in this regard, but also a need for caution. On the positive side, empirical assessments of earlier fiscal consolidations have identified a number of factors that tend to be associated with durable adjustment. These include a focus on expenditure reductions rather than tax increases; cuts in transfer spending and in the public sector wage bill; and an urgent need to address high levels of public debt. To varying degrees, these are characteristics of the recent period of fiscal improvement. Furthermore, such forces have been associated with better overall macroeconomic performance, including stronger investment and employment growth. The decline in private saving associated with an increase in public saving was apparently stronger during the 1990s than in earlier periods. This response may also point to the latest fiscal adjustment being more credible, although other factors (such as rising stock market wealth) may also have lowered private saving. It is likely that the strengthening of fiscal frameworks, combined with public sector management reforms that have improved the prioritization and control of public spending, has also contributed to greater fiscal discipline, and should help sustain these improvements.

Nevertheless, these fiscal and institutional measures have yet to face the test of a cyclical downturn. The recent buoyancy of revenue in some countries, notably the United States, is due in part to an exceptionally well-sustained period of economic growth and to the contribution of "new economy" factors whose durability has yet to be fully demonstrated. As a further note of caution, lower interest payments and capital outlays have made an important contribution to the recent decline in expenditure, most significantly in Europe where, for example, a number of countries have seen sizable reductions in interest rate risk premiums associated with the introduction of the euro. Substantial additional fiscal improvements from lower interest rates cannot be expected, and further reductions in capital outlays are not necessarily desirable. Recent experience with the new fiscal frameworks is too limited to identify which approach, if any, might best help to withstand prospective pressures for an expansion of spending over the short to medium term. Some further refinement of rules may also be needed—for example, to ensure ongoing emphasis on restraining discretionary expenditures.

Looking to the longer term, the pressures of aging populations on pension, health, and other areas of public spending will impose a challenge to fiscal positions and underlying fiscal frameworks in almost all advanced economies. While some countries, such as the United Kingdom, Canada, and Sweden, have reformed their public pension systems to improve significantly their financial viability, others, such as Germany and France, still have a long way to go to ensure the future of these schemes. The challenge of aging populations need not be insurmountable, however, if timely and wide-ranging policy measures are taken. Part of this response, already taken in a number of countries, is to limit prospective retiree claims on future output by scaling back pensions or increasing contributions. A more far-reaching approach, though, would be to boost output growth so that future retirees and workers will have a larger pie to share. Measures directed at this goal would include comprehensive labor market reforms, particularly in the euro area, to reduce unemployment and to increase participation both of older workers and—in some countries—of females. Increased prefunding of pension liabilities could help if this led to higher overall saving and investment; this approach would also improve the intergenera-

tional equity in pension provision and allow a smoother profile of contribution rates.

Increasing globalization can also provide opportunities for countries to tackle the challenge of aging. Trends in projected dependency ratios and national saving-investment balances in the advanced economies are the opposite of those in many developing countries, which, in aggregate, are projected to provide nearly half of global output by 2050. By building up national saving and foreign assets in advance of age-related economic pressures, advanced economies would both support incomes and consumption in their own countries as dependency ratios reach their peak and would also contribute to investment and growth in developing economies. The pressures of aging populations on employment and output could also be reduced through increased migration from countries with younger population structures.

The capital and labor flows implied by this global approach would be largely unprecedented, at least in modern times. But making full use of these prospective benefits of globalization, as well as pursuing pension system reforms and other structural adjustments, would go a long way toward enabling countries to cope with the aging challenge.

Fiscal Improvement in OECD Countries: A Retrospective

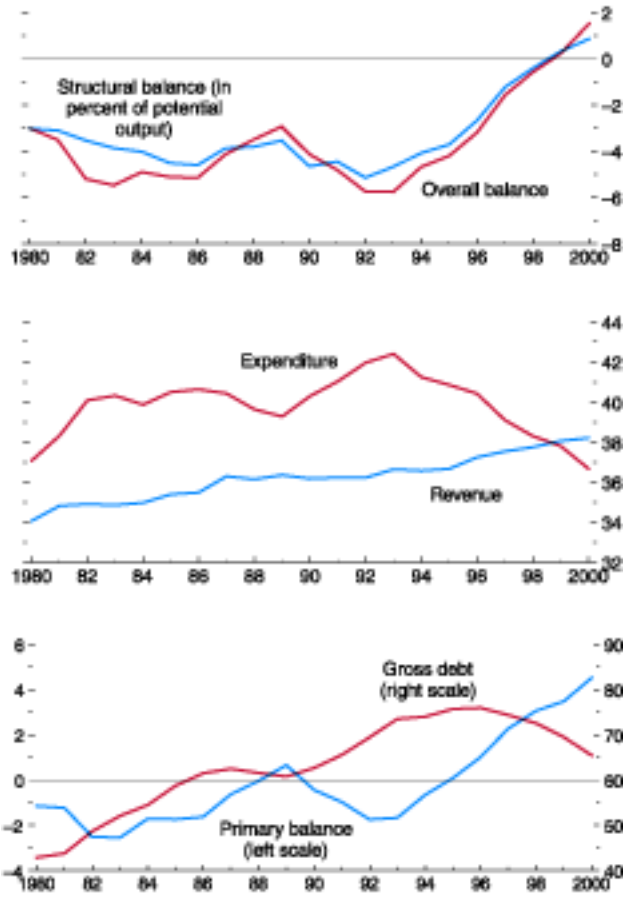
The fiscal positions of almost all industrial countries have improved markedly since the early 1990s.[3] Only Japan has not contributed to this area-wide adjustment, reflecting the use of expansionary fiscal policy during much of the 1990s to promote and sustain economic recovery (see Box 3.1). Taken together, other industrial countries have seen an improvement in the overall structural balance of the general government of about 4½ percent of GDP (Figure 3.2).[4]

[3]This section focuses on OECD data sources because they provide details on the composition of general government revenue and expenditure, particularly on a cyclically adjusted basis.

[4]The figures cover the original OECD member countries plus those that joined in the 1960s (Finland) and in

Figure 3.2. Fiscal Developments in the OECD Area
(Percent of GDP unless otherwise noted)

Industrial countries have experienced a marked improvement in fiscal positions since the early 1990s, mostly due to expenditure reduction.

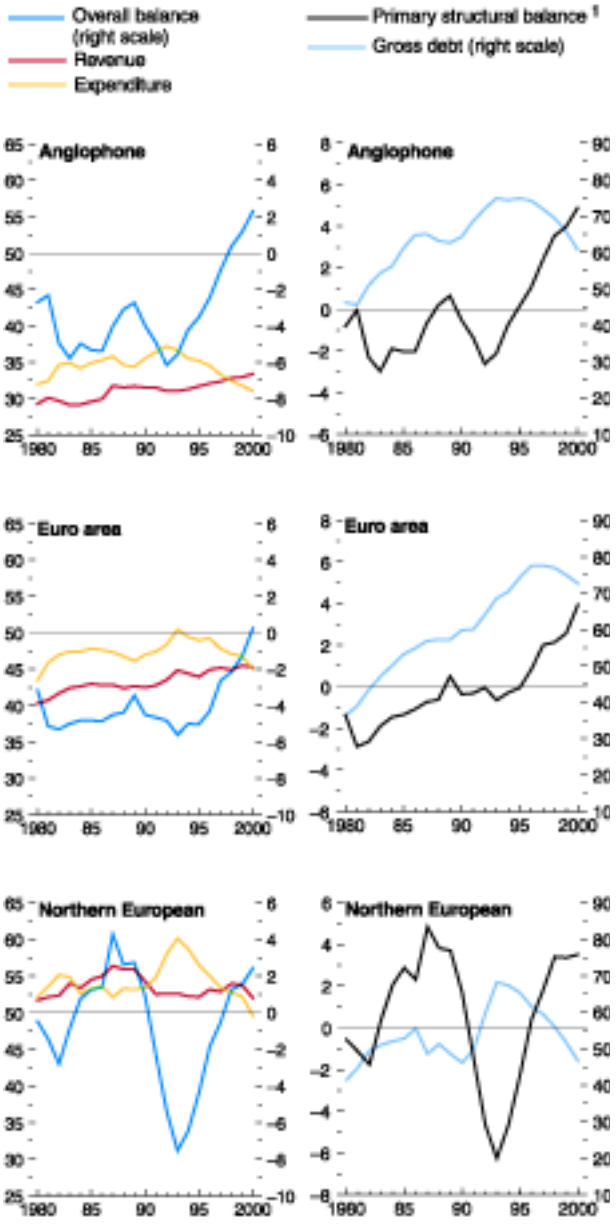


Sources: OECD Analytical and Economic Outlook Databases.

Figure 3.3. Fiscal Developments in Groups of OECD Countries

(Percent of GDP unless otherwise noted)

Recent fiscal improvements have been similar among industrial countries, although surpluses have been smaller in the euro area.



Sources: OECD Analytical and Economic Outlook Databases.
[1]Percent of potential GDP.

As primary surpluses began emerging toward the end of the 1990s, the overall government debt ratio has declined from its peak of about 75 percent of GDP. However, fiscal adjustment has not been as large in the euro area, where the overall surpluses that are now commonplace among other OECD countries have yet to be seen in the three largest member countries: France, Germany, and Italy (Figure 3.3).[5]

Since 1980, there have been two periods of fiscal adjustment (1983–89 and 1993–2000), separated by a period of fiscal expansion triggered by the economic slowdown of the early 1990s (Figure 3.4). Precise comparisons between the two periods of adjustment are complicated by the decline in inflation over this period and its differential impact on the various fiscal indicators.[6] Nonetheless, the two episodes differ in key respects:

- The more recent fiscal adjustment has been the result of a sharp reduction in primary expenditure, especially wages and transfers, and a marked reduction in interest payments, especially in the euro area countries with relatively high levels of government debt;[7] in contrast, the fiscal adjustment in the 1980s was driven mainly by revenue increases.

the early 1970s (Australia and New Zealand). In addition to Japan and the new non-industrial country members of the OECD, Luxembourg, Switzerland, and Turkey have been excluded because comparable data are not available. All aggregate measures are weighted averages based on 1995 GDP and purchasing power parities as reported in OECD *Economic Outlook 68* (Paris: Organization for Economic Cooperation and Development, 2000).

[5]The groups are as follows: mainly Anglophone countries (Australia, Canada, New Zealand, the United Kingdom, and the United States); euro area countries; and northern European countries that do not participate in the euro area (Denmark, Iceland, Norway, and Sweden).

[6]A decline in inflation can affect the fiscal position through various channels, most notably through lower nominal interest rates. The primary fiscal deficit is less subject to such an effect and is therefore a more useful indicator for fiscal comparisons across periods with different inflation levels.

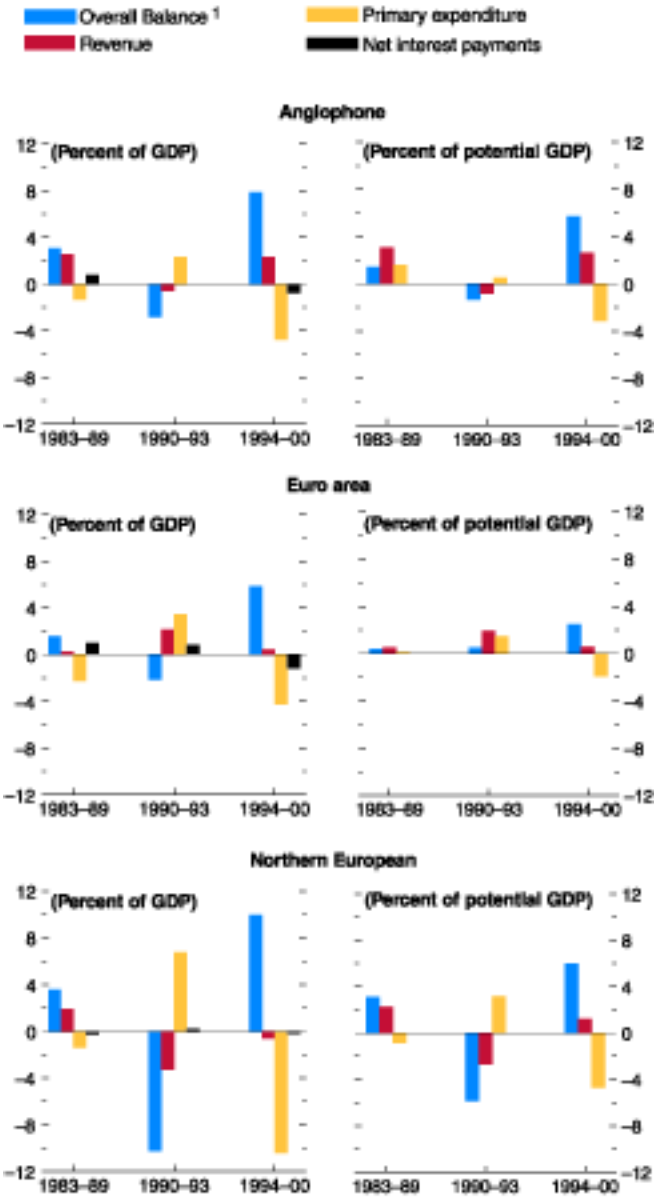
[7]In the euro area, the move toward European Economic and Monetary Union contributed to reducing the real interest rate by enhancing the credibility of the exchange rate peg.

- Debt dynamics in the 1990s have been favorably influenced by the emergence of primary surpluses, lower interest rates, and buoyant growth. In the earlier fiscal adjustment, government debt ratios generally increased, as primary deficits more than offset the effect of negative real interest rates. Recent trends have raised questions in the United States and elsewhere about the implications of a diminishing supply of government securities (Box 3.2).
- Discretionary fiscal policies have played more of a role during the recent fiscal adjustment (Figure 3.4).[8] This may reflect the smaller size of automatic fiscal stabilizers in the 1990s, partly due to reforms that have reduced the overall progressivity of the tax system, lowered social benefits, and improved the targeting of benefits.[9]
- Changes in estimates of potential output growth in the second half of the 1990s should also be noted. In the United States, a portion of the improvement in the structural balance can be attributed to upward revisions to estimated potential output growth, as part of the increase in revenues and of the fall in spending resulted from underlying improvements in the economy. Hence, the increase in the structural fiscal balance may overstate the extent of discre-

Figure 3.4. Actual and Structural Balances in Groups of OECD Countries

(Changes within each period)

Compared with the fiscal adjustment in the 1980s, the recent improvement has resulted from discretionary policies, particularly reductions in primary expenditures.



Sources: OECD Analytical and Economic Outlook Databases.

[1]Primary structural balance when evaluated as percent of potential GDP (right column).

[8]According to the OECD methodology, the difference between the actual and cyclically adjusted (structural) balances, corrected for net interest payments, provides a measure of automatic stabilizers. The change in the structural primary balance measures the change in the stance of fiscal policy; see *OECD Economic Outlook* Sources and Methods at http://www.oecd.org/eco/sources-and-methods/index.htm. A discussion of the differences between the OECD, the European Union, and the IMF methodologies used in assessing the fiscal stance can be found in Bank of Italy, *Indicators of Structural Budget Balances* (Rome: Bank of Italy, 1999).

[9]This point is discussed in Paul van den Noord, "The Size and Role of Automatic Fiscal Stabilizers in the 1990s and Beyond," OECD Economics Department Working Paper No. 3 (Paris: Organization for Economic Cooperation and Development, January 2000). The cyclical adjustment may not take full account of other factors, such as the stock market boom in the United States and related revenues from realized capital gains, together with the increase in effective tax rates as incomes increase.

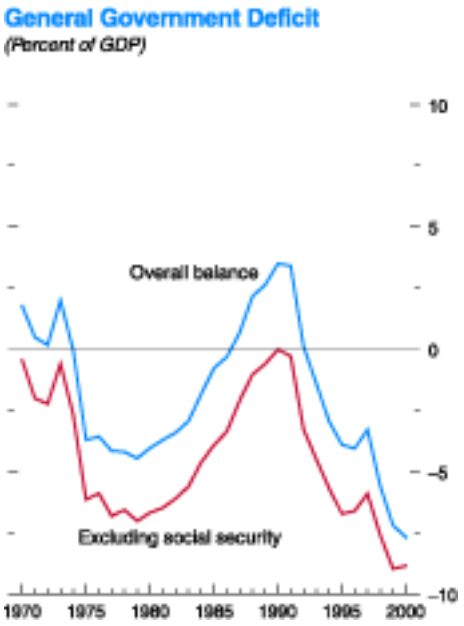
Box 3.1. Japan: A Fiscal Outlier?

Japan adopted a conservative fiscal policy for most of the postwar period. A golden rule budget policy, in which borrowing through "construction bonds" was used only to finance investment, was in place until the mid-1960s, when the first "deficit-financing" government bonds were issued to make up for a revenue shortfall. The first oil shock and the revenue weakness in the wake of the subsequent recession prompted a buildup in the deficit (see the first Figure).

By FY1979, the general government deficit (excluding social security) had risen to 7 percent of GDP.[1] With the rapid expansion of the economy during the 1980s, however, significant fiscal consolidation was achieved, eliminating the need for deficit-financing bonds in the FY1990 budget. This strengthening was reflected in an approximately balanced fiscal position (excluding social security) in FY1990.

Japan has experienced a substantial deterioration in its fiscal position over the 1990s, however, in contrast to other major industrial countries. The main proximate causes were a decline in tax collections following the bursting of the "bubble" economy at the beginning of the decade and the countercyclical policy measures undertaken to help resuscitate the economy:[2]

- Revenues were affected by the decade-long stagnation of economic activity and by tax cuts. General government tax revenue fell from a peak of 22½ percent of GDP in FY1990 to 18¼ percent in FY1994, and has yet to recover. The bulk of the fall in tax revenue was due to a fall in tax elasticities, particularly the impact of declining profitability on corporate tax receipts. The revenue losses also reflected, in part, policy decisions. These include temporary income tax cuts in FY1994–96 and FY1998; an upward shift in income tax brackets in FY1995; a reduction in the top marginal income tax rate from 65 percent to 50 percent with proportional reduction in other income tax brackets; and a progressive reduction in the corporate income tax rate to 40 percent from 50 percent in 1990.[3]
- Countercyclical increases in expenditure also boosted the deficit. Stimulus packages, including significant amounts of public works spending, were used as an instrument to quickly boost aggregate demand in view of the relatively weak automatic stabilizers in the Japanese economy. The packages involved significant "headline" spending figures—reaching ¥18 trillion (3½ percent of GDP) in November 1998—although the "real water" content (i.e., new measures that directly stimulate activity) was often significantly lower. Besides greater public investment spending at



Sources: National authorities and IMF staff estimates.

[1]The Fiscal Year (FY) runs from April to March.

[2]See Martin Mühleisen, "Too Much of a Good Thing? The Effectiveness of Fiscal Stimulus," in *Post-Bubble Blues*, ed. by Tamim Bayoumi and Charles Collyns (Washington: International Monetary Fund, 2000).

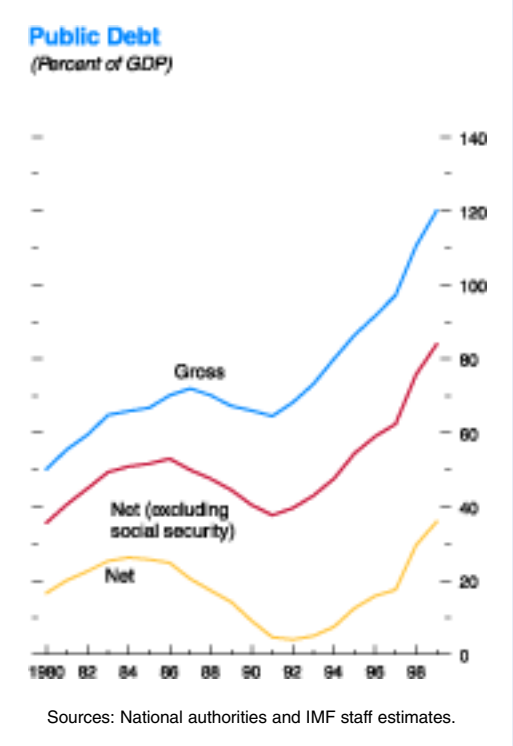
[3]An effort to shore up the fiscal position—when in FY97, the consumption tax rate was hiked from 3 percent to 5 percent and the tax rebates were revoked—was given up as the economy sank back into a recession after a short-lived revival in growth.

both central and local government levels, these packages contained financial measures, such as loans provided through the Fiscal Investment and Loan Program (FILP).

Reflecting these economic developments, the budget deficit increased sharply. The general government balance (excluding social security) rose from near balance in FY1990 to a deficit of over 7 percent of GDP in FY1998. The structural balance (excluding social security) is estimated to have deteriorated by about 6 percent of GDP over the same period.

Japan's public debt has risen sharply as the deficit deteriorated, and on some measures now surpasses that of other major industrial countries. By the end of 1999, *gross debt* had reached 120 percent of GDP (see the second Figure). However, the sizable assets of the general government have kept *net debt* (around 35 percent of GDP at the end of 1999) at a relatively low level by international standards. The difference between gross and net debt is accounted for by the assets of the pension system (valued at 50 percent of GDP) and financial assets held by the central and local governments (35 percent of GDP). An alternative definition of net debt would treat the social security system as independent and exclude its assets—which for Japan are more than offset by the projected net future liabilities of the pension system (estimated at 60 percent of GDP through 2050)—from public debt calculations.[4] On this definition, net debt would be around 85 percent of GDP at the end of 1999. However, the general government's net obligations may be considerably higher than suggested by the net debt figures, as liabilities arising from loan guarantees and bank support may have to be met and assets may be overvalued.

Uncertainties about the extent of public indebtedness highlight the need for improving fiscal transparency. The problems include a significant time lag in the presentation of fiscal



Sources: National authorities and IMF staff estimates.

information, a confusing distinction between initial and supplementary budgets, and concerns over the quality of general government financial assets. The authorities have taken some steps to improve transparency, including the publication of a consolidated central government balance sheet, initial steps toward the application of cost-benefit analysis for project selection, and Fiscal Investment and Loan Program reform legislation that provides for greater reliance on market financing of public works projects. However, these measures need to be supplemented with further steps to increase the coverage of the government's balance sheet, through, among other actions, consolidating central government data with those of local governments, placing budget planning in a medium-term policy framework to reduce uncertainty about future plans for deficits and debt levels, overhauling the system of central and local government accounts, and ensuring timely compilation of consolidated general government accounts.

[4]See Martin Mühleisen "Sustainable Fiscal Policies for an Aging Population," in *Japan: Selected Issues*, IMF Staff Country Report No. 00/144 (Washington: International Monetary Fund, November 2000).

Box 3.1 *(concluded)*

Japan's unfavorable demographic trends are also adding to fiscal pressures. As discussed in the main text, under current projections Japan is likely to experience the most rapid increase among the Group of Seven countries in the share of the elderly in its total population, implying increasing pressure on health care as well as pension costs.[5] Moreover, slower growth of the labor force will lower potential output growth, which will complicate the task of bringing government debt down to a more manageable share of GDP.

The rise in public debt and pressures from unfavorable demographic trends have put the spotlight on the need for fiscal consolidation. Given the trade-offs between the very high level of public debt and the still fragile recovery, the very gradual withdrawal of fiscal stimulus currently under way is appropriate for now. However, it is important that the authorities map out a strategy for consolidation to improve confidence in Japan's medium-term growth prospects and to reduce the risks of volatile financial market conditions. An appropriate strategy is likely to involve a substantial scaling back of spending on public works, combined with revenue increases secured through a broadening of the personal income tax base and some increase in the consumption tax rate. Some progress was made toward improving the solvency of the public pension system in 2000 through reform legislation that, among other measures, provided for an increase in contribution rates. However, additional social security reforms are likely to be needed, not only on the pension side, but also in the area of public health care expenditures.

[5]See Hamid Faruqee, "Population Aging and its Macroeconomic Implications" in *Japan: Selected Issues,* IMF Staff Country Report No. 00/144 (Washington: International Monetary Fund, November 2000).

tionary policy actions. Conversely, in the euro area, a decline in estimated potential output growth implies that the fiscal effort has been larger than shown by the change in structural balances.[10]

Expenditure Contribution to Adjustment

The most striking feature of the recent fiscal consolidation has been the downtrend in government expenditure. On average, general government expenditure in the advanced economies (excluding Japan) declined by close to 6 percent of GDP during 1993–2000, with the sharpest reduction in the northern European countries (10½ percent of GDP). The bulk of adjustment has fallen on expenditure categories that contributed to the earlier long upward trend in the expenditure ratio: wages and salaries, current transfers, and interest payments (Figure 3.5).

- Expenditure on *wages and salaries* contributed substantially to the latest fiscal adjustments, largely due to a slowdown in government employment growth; these expenditures were almost constant as a share of GDP throughout the 1980s.
- In the Anglophone and northern European countries, the increase in the share of GDP absorbed by *current transfers* in the 1980s and early 1990s was largely reversed during 1993–2000. This change reflects privatization, increased targeting of social spending,

[10]See "Growth Divergences in the United States, Europe, and Japan: Trend or Cyclical?" Chapter III of the October 1999 *World Economic Outlook.* Between 1994 and 2000, estimates of potential output in 1999 have increased by 1.7 percent in the United States and decreased between 1½ and 2 percent in the euro area. Assuming a revenue elasticity slightly higher than one and an elasticity of current spending in the range of 0 and ¼, and bearing in mind all the uncertainty surrounding potential output and elasticity measures, about ½ of a percent of GDP of the fiscal adjustment in the United States would be accounted for by higher potential output, whereas euro area countries would have adjusted their structural balances by about of a percent of GDP more than would have been justified by changes in estimated potential output.

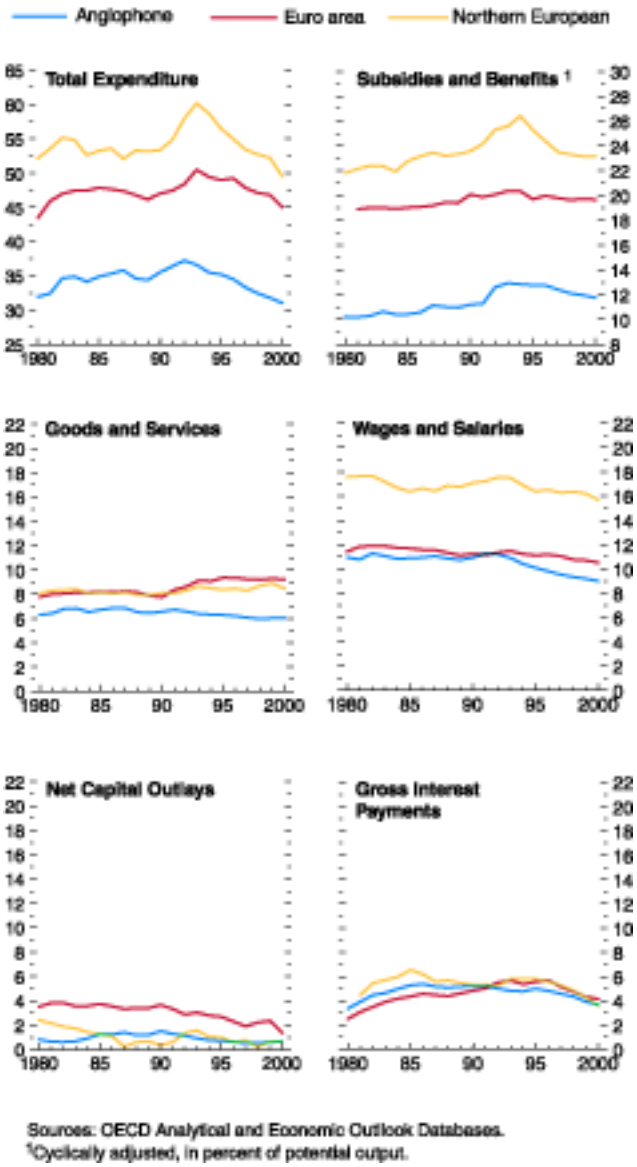
and, in some cases, major pension reforms (for example, Sweden).

- The decline in the share of *interest payments* as a percent of GDP coincided with the reduction of primary deficits and the subsequent emergence of primary surpluses. This reduction was more accentuated among euro area and northern European countries, due to their higher level of public indebtedness and, for some euro area economies, to sharp declines in interest rates in the run-up to monetary union.
- *Public investment* declined in the euro area and, to a lesser extent, in northern European countries, both in percent of GDP and as a ratio to primary outlays.[11]
- There was also a reduction in *defense spending*, largely driven by the United States and the United Kingdom, where the peace dividend amounted to some 2 percent of GDP.[12]

Reforms in public expenditure management, including mechanisms to strengthen budgetary procedures and to enhance budget flexibility while strengthening expenditure control, have contributed significantly to expenditure restraint.[13] Furthermore, reconsideration of the role of government has led to an expanded role

Figure 3.5. Expenditure Developments in Groups of OECD Countries
(Percent of GDP unless otherwise noted)

The recent reduction in expenditure has been driven by lower public employment costs, transfers, and interest payments.



Sources: OECD Analytical and Economic Outlook Databases.
[1]Cyclically adjusted, in percent of potential output.

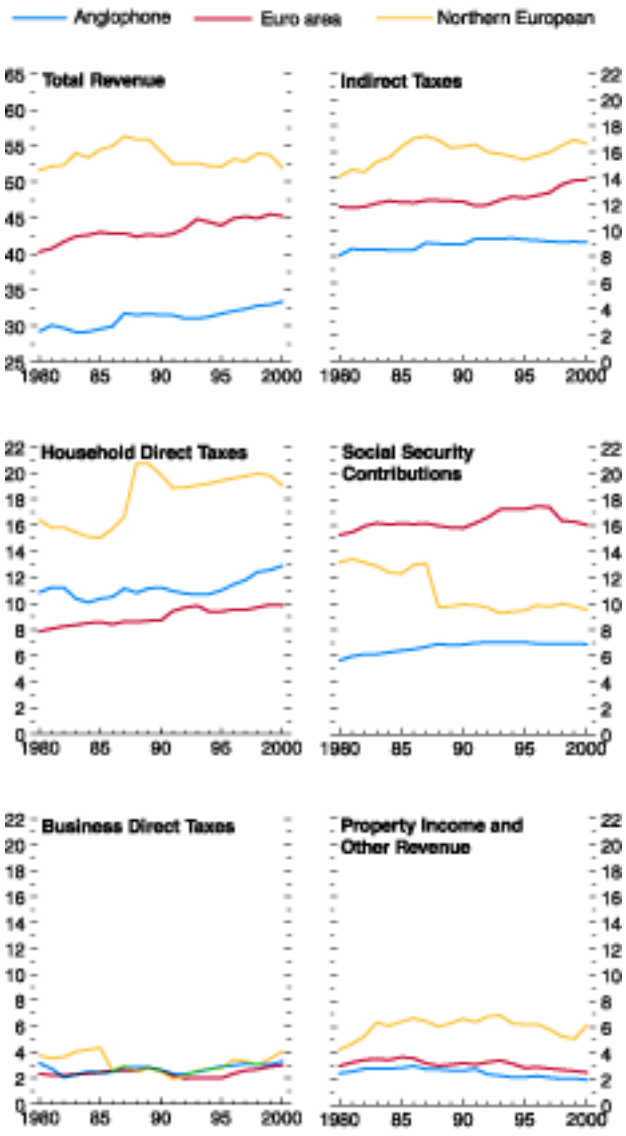
[11]On the other hand, in some countries of the euro area, the reduction in public investment may have reflected the privatization process or changes in the classification of public utilities and other units from the general government to the private sector, as pointed out in Daniele Franco and Fabrizio Balassone, "Public Investment, the Stability Pact, and the 'Golden Rule'," *Fiscal Studies*, Vol. 21 (June 2000), pp. 207–29. The same authors also point to the increasing use of project financing, which, in the case of the United Kingdom, appears to explain about a third of the decline in public investment. That being said, the United Kingdom has recently adopted a golden rule (government should borrow only to finance investment) as part of its fiscal framework to facilitate public investment, which had fallen to historically low levels.

[12]For most countries, data on the functional breakdown of expenditure are available only through 1995, largely reflecting problems associated with shifting national accounting standards from SNA93 to ESA95.

[13]Measures have included *ex ante* and *ex post* program evaluation (Australia), creating responsibility centers (France), and performance agreements (New Zealand and the United Kingdom). For a discussion of these measures, see Jim Brumby, "Budgetary Devices That Deliver,"

Figure 3.6. Revenue Developments in Groups of OECD Countries
(Percent of GDP)

The modest rise in fiscal revenues in the 1990s has comprised increasing indirect taxes in Europe, and rising direct taxes on households in the Anglophone countries.



Sources: OECD Analytical and Economic Outlook Databases.

for markets in the provision of public goods and services, including contracting out of government services, liberalizing public procurement, introducing user charges, and using vouchers in the distribution of merit goods and services.

Revenue Contribution to Fiscal Adjustment

Unlike in the 1980s, revenue growth has made a relatively small contribution to the fiscal adjustment that has taken place since 1993. Revenue to GDP ratios rose only modestly in the 1990s in the euro area and mainly Anglophone countries, and generally stabilized in northern Europe (Figure 3.6). While revenue ratios from the business sector increased slightly across all countries, European countries have shifted toward taxing consumption, whereas in Anglophone countries direct taxation of households has risen.

The limited recent contribution of revenue increases reflected a wave of tax reforms that started in the United States, Canada, and the United Kingdom in the first half of the 1980s and then moved to other industrial countries. These reforms were directed at strengthening tax administration and improving the overall tax structure.[14] Marginal tax rates on personal and corporate income were reduced, but tax exemptions, reliefs, and credits were drastically curtailed to offset revenue losses. Many countries lowered taxes on capital income, both to contain capital flight and to achieve greater neutrality in the taxation of income accruing from different financial assets. The value added tax, or VAT, has become

Oxford Policy Institute Policy Brief No. 3 (June 2000); and OECD, "Modern Financial Management Practices," PUMA/SBO (98)8 (Paris: Organization for Economic Cooperation and Development, 1998), available at http://www.oecd.org/puma.

[14]A more detailed account of tax and tax administration reforms over the last two decades can be found in Ken Messere, "Half a Century of Changes in Taxation," *Bulletin for International Fiscal Documentation*, Vol. 53 (August/September 1999); Jeffrey Owens, "Emerging Issues in Tax Reform: the Perspective of an International Bureaucrat," *Tax Notes International*, Vol. 15 (December 1997); and Vito Tanzi, "Globalization, Tax Competition, and the Future of Tax Systems," IMF Working Paper 96/141 (Washington: International Monetary Fund, December 1998).

Box 3.2. Financial Implications of the Shrinking Supply of U.S. Treasury Securities

The recent and prospective reduction in the supply of U.S. treasury securities has attracted considerable attention, in part because of the international role of the U.S. dollar, and in part because the U.S. treasury market is the largest, deepest, and most liquid government securities market in the world.[1] Reflecting these features, U.S. treasury securities currently play several important roles in U.S. and global financial markets, including as a benchmark for the prices of private securities, an asset for holdings of official foreign exchange reserves, a major instrument of U.S. monetary policy implementation, and a safe haven for domestic and international investors during times of financial stress.

The shrinking supply of U.S. treasury securities and the associated decline in liquidity in the secondary market have made these securities less useful in the above roles.[2] In particular, their prices increasingly reflect the scarcity of treasury securities and technical factors. As a result, treasury securities are becoming poorer market benchmarks, increasingly expensive to use as collateral (because their yields have declined relative to the cost of funds to finance their purchase), and less attractive to portfolio managers.

In this environment, while questions have arisen about what instruments could substitute for U.S. treasury securities if the supply continues to shrink, markets are already successfully shifting away from treasuries:

- In the U.S. dollar markets, a variety of nontreasury benchmarks, including swaps, securities issued by large U.S. "agencies" (such as Fannie Mae, Freddie Mac, and the Federal Home Loan Bank), and some large corporate issues, can be and are being used as reference points both for *quoting* yields on new and existing fixed-income instruments and for the *pricing* of new issues.
- Market participants have significantly shifted short-term liquidity and funding activities toward high-quality, liquid alternatives to the treasury bill and treasury repo markets—mainly agency securities (as noted above) and some corporate bonds. As a result, cash and repo markets in agency securities have become more liquid and active.
- Portfolio managers that have long-maturity liabilities face a dearth of high-quality, long-maturity assets. These managers—including those at pension funds and insurance companies—may need to shift to shorter-maturity assets, and would need to manage the resulting maturity mismatch between assets and liabilities.
- Central banks in the United States and elsewhere have expanded the menu of securities that they use for liquidity and foreign exchange reserve management to include U.S. agency securities and asset-backed securities.

In summary, it is clear that private securities can readily serve as the benchmark and in most other roles in U.S. dollar markets, as they did before the treasury market existed. It is less clear what instruments might serve as the U.S. dollar safe haven. Market participants might use bank deposits or high-grade corporate bonds, although neither has the minimal credit risk and strong market liquidity of U.S. treasuries. Alternatively, they might use whatever the Federal Reserve decides to use in place of treasuries in its operations. In addition, the financial implications of shrinking government securities markets may be different outside the U.S. dollar markets. Government securities markets may play more important benchmark roles in countries that lack well-developed markets for private instruments than the treasury market does in the United States. These questions will be more fully explored in the 2001 issue of the IMF's *International Capital Markets* report.

[1]The U.S. treasury market has daily turnover of about $200 billion, five times greater than daily turnover on the New York Stock Exchange.

[2]The gross federal debt held by the public declined from about 50 percent of GDP in 1995 to about 36 percent in 2000, and is projected to decline further during the current decade.

an increasingly important source of indirect tax revenues in almost all advanced economies.[15] Particularly in the euro area, standard VAT rates have gradually been increased to partially offset the downward trend in marginal income tax rates.

The Role of One-Off Factors

Several forces, such as privatization and tax amnesties, that may not be repeated in the future have helped to drive the recent fiscal adjustment. While such moves may have been significant in particular countries, the overall influence of these one-off sources of revenue has been limited. Privatization proceeds during the 1990s were modest for the countries covered in this chapter (0.3 percent of aggregate GDP a year on average), with about two-thirds generated within the European Union.[16] Although the scope for further revenue from privatization is limited, new income sources such as spectrum license fees have recently emerged, particularly in the European Union.[17] A number of countries have also used tax amnesties to raise revenue and remove backlogged tax appeals, but the payoff was generally small (often less than ½ percent of total revenue) and voluntary tax compliance rarely increased, probably because of the expectation of future amnesties.[18] Various "creative accounting" measures—such as moving spending off budget, making payments to the government for assuming pension liabilities, and shifting taxes forward—helped some EU countries meet the Maastricht deficit and debt targets, but the fiscal impact in countries pursuing such measures averaged a modest ½ percent of GDP in 1997.[19] Such measures have not contributed significantly to fiscal outcomes in subsequent years.

The Success of Fiscal Consolidations

Reductions in fiscal deficits do not always guarantee a significant and enduring strengthening of public finances. While some attempts at fiscal consolidation result in a persistent improvement in the fiscal balance and a sizable reduction of the public debt, others are soon reversed. Recent economic analysis suggests that, in advanced economies, a fiscal improvement is more likely to be successful when based on cuts in expenditure, especially reductions in the wage bill (via lower public employment) and in transfers (such as pensions), and when undertaken by countries with high levels of debt.[20] The same factors appear to be important in determining the impact of fiscal consolidation on macroeconomic performance more generally (Box 3.3). This analysis has identified successful fiscal consolidations mostly in the 1980s and 1990s, possibly reflecting growing opposition to the progressive enlargement of public sector participation in the economy and, for some countries, grow-

[15]The United States central government is now the only one in the OECD without a VAT or equivalent tax.

[16]In EU countries, privatization receipts do not count toward reducing the general government deficit in the Maastricht definition. Furthermore, these are gross proceeds that do not necessarily correspond to net proceeds to government. For further detail, see Ladan Mahboobi, "Recent Privatization Trends," OECD *Financial Market Trends*, No. 76, (Paris: Organization for Economic Cooperation and Development, June 2000).

[17]IMF staff estimates indicate that revenue in 2000 from the allocation of third-generation licenses amounted to 1½ percent of GDP in the euro area.

[18]Countries offering amnesties include France, Ireland, Italy, Australia, and New Zealand, as well as most states in the United States. See John Hasseldine, "Tax Amnesties: An International Review," *Bulletin for International Fiscal Documentation*, Vol. 52, No. 7 (July 1998) and the references therein. The 1988 general amnesty carried out in Ireland stands out because it raised about $700 million or 4½ percent of total revenue.

[19]Eurostat, "Statistics on Convergence Criteria-Assessment by Eurostat," (Luxembourg: Eurostat, March 1998).

[20]See Alberto Alesina and Roberto Perotti, "Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects," *IMF Staff Papers*, International Monetary Fund, Vol. 44 (June 1997), pp. 210–248; IMF, *World Economic Outlook* (May 1996), Ch. III "Fiscal Challenges in Industrial Countries," pp. 44–62; Alberto Alesina and Silvia Ardagna, "Tales of Fiscal Adjustment," *Economic Policy* (1998) pp. 488–545; Roberto Perotti, Rolf Strauch, and Juergen Von Hagen, *Sustainability of Public Finances* (London: Centre for Economic Policy Research, 1998); and Juergen Von Hagen, Andrew Hughes Hallett, and Rolf Strauch, "Budgetary Consolidations in EMU," Economic Papers No. 148 (Brussels: European Commission, March 2001).

Box 3.3. Impact of Fiscal Consolidation on Macroeconomic Performance

This box reviews the broader aspects of economic performance—notably, trends in output, saving, and external balances—that have been associated with the recent fiscal improvements. The focus is on the euro area and the Anglophone countries.

While there is widespread agreement that a sound fiscal position is conducive to improved economic performance over the medium to long term, the impact of fiscal consolidation on output in the short term is an area of some dispute.[1] The standard Keynesian analysis suggests that fiscal contraction will result in lower employment and output over the short term, as it reduces aggregate demand (partly offset by the decline in real interest rates and by the anticipation of a reduction in the future tax burden). A more recent economic literature (often labeled "non-Keynesian") has emphasized the distortions arising from government intervention. In this view, the short-term macroeconomic impact of fiscal consolidation can be positive under the same circumstances that help make such adjustments successful—when they occur with high initial levels of public debt or are expenditure-based. As high public debt raises interest rates and enhances expectations of future increases in taxation or possible default (especially if certain thresholds of public debt are perceived as unsustainable), a reduction in public debt can increase aggregate demand of the private sector via wealth effects.[2] Reductions in public expenditure and the associated public wage compression (which can impact private sector wages) can reduce production costs, which raises profitability and competitiveness, thus stimulating investment and exports.[3] Reducing public spending can also raise the confidence of the business sector, to the extent such consolidations are perceived as more successful.

Considering the experience of the past 20 years, there is some evidence for the United States suggesting that in the short term the standard Keynesian effect may dominate, with fiscal contractions (achieved through either a reduction in expenditure or an increase in taxes) estimated to have had a negative effect on output, although the multipliers are generally small.[4] This result plausibly reflects the relative stability of fiscal policy and government debt in the United States and the limited role of government in the economy, characteristics that are shared by other Anglophone countries—at least over recent years. Even in these countries, however, one part of the non-Keynesian story does appear to hold, namely reductions in government spending have a strong positive effect on investment spending.[5]

The evidence for other countries is more mixed, with several authors finding evidence that some fiscal contractions can be associated with somewhat higher growth even in the short term, particularly if the contraction is associated with falls in government spending.[6] Most of these cases occur in euro area countries characterized by high levels of government debt and large governments, where non-Keynesian effects

[1]See Richard Hemming, Michael Kell, and Selma Mahfouz, "The Effectiveness of Fiscal Policy in Stimulating Economic Activity—A Review of the Literature," (unpublished; Washington: International Monetary Fund, March 2000); and Chapter III in the May 1996 *World Economic Outlook*.

[2]See, among others, Roberto Perotti, "Fiscal Policy in Good Times and Bad," *Quarterly Journal of Economics*, Vol. 114 (November 1999), pp. 1399–1436.

[3]See, for example, Alberto Alesina, Silvia Ardanga, Roberto Perotti, and Fabio Schiantarelli, "Fiscal Policy, Profits, and Investment," NBER Working Paper No. 7207 (Cambridge, Mass.: National Bureau of Economic Research, July 1999).

[4]See Olivier Blanchard and Roberto Perotti, "An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output," NBER Working Paper No. 7269 (Cambridge, Mass.: National Bureau of Economic Research, July 1999). Small multipliers are also a property of the IMF's large econometric model (MULTIMOD) when monetary policy is assumed to primarily stabilize inflation.

[5]This result has also been found for other countries. See Alesina and others, "Fiscal Policy, Profits, and Investment."

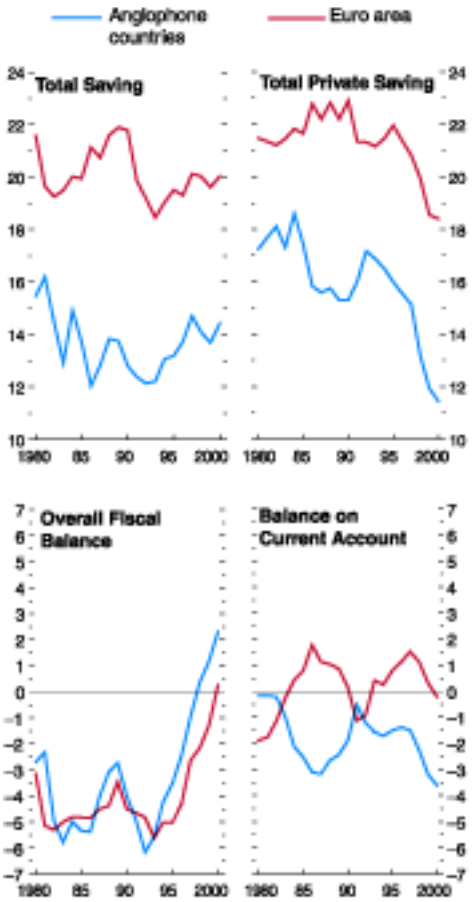
[6]For a survey, see Alberto Alesina, Roberto Perotti, and Jose Tavares, "The Political Economy of Fiscal Adjustments," *Brookings Papers on Economic Activity*, No. 1, Brookings Institution, pp. 197–266 (1998).

Box 3.3 *(concluded)*

are likely to be particularly important. Although governments remain large in many euro area countries, recent reductions in government debt ratios and fiscal deficits, and the associated improvements in the long-term fiscal outlook, may have reduced the effectiveness of non-Keynesian channels. In addition, other factors that have supported output during times of fiscal consolidation—such as exchange rate depreciations in the 1980s and reductions in real interest rates in the run-up to the European Economic and Monetary Union in the 1990s—are less likely to play a significant role in the future. These arguments suggest that broad-based fiscal contractions are now less likely to be associated with short-term output expansions, even in the euro area. Indeed, the improvement in fiscal balances in most euro area countries over the late 1990s to achieve the Maastricht treaty criteria was associated with a period where output remained below potential. As for Japan, it is notable that the attempted fiscal consolidation in 1997 was followed by a sharp contraction in output.

Turning to saving and the current account, improvements in the fiscal balance are generally not fully reflected in higher aggregate saving, as part is offset by the decline in private saving, presumably induced by the anticipation of future tax reduction. This offset is likely to be bigger when the fiscal consolidation is expected to be larger and more successful.[7] Numerous empirical analyses have attempted to estimate the average extent of the impact: most contributions have concluded that in industrial countries about half of a reduction in fiscal deficits is offset by a decrease in private saving.[8]

Selected Industrial Country Groups: Saving and External Balance
(Percent of GDP)



Sources: OECD Analytical and Economic Outlook Databases.

The substantial improvement of fiscal balances in industrial countries (excluding Japan) since 1993 has been associated with an offsetting

[7]For a formal analysis of Ricardo's suggestion that the private sector tends to neutralize the impact of fiscal adjustments on total saving, see Robert J. Barro, "Are Government Bonds Net Wealth?," *The Journal of Political Economy*, Vol. 82 (November–December 1974), pp. 1,095–1,117. Subsequent literature has identified several reasons suggesting a limited extent of the offset—see, for example, Olivier Blanchard and Stanley Fischer, *Lectures on Macroeconomics* (Cambridge: MIT Press, 1985).

[8]See Douglas Bernheim, "Ricardian Equivalence: An Evaluation of Theory and Evidence," in *NBER Macroeconomic Annual 1987,* ed. by Stanley Fischer (Cambridge: MIT Press, 1987) pp. 263–303. For a survey of the literature and more recent empirical results, see Paul R. Masson, Tamim Bayoumi, and Hossein Samiei, "International Evidence on the Determinants of Private Saving," *The World Bank Economic Review*, Vol. 2, No. 3, pp. 483–501 (The World Bank: Washington, 1998).

fall in private saving that appears somewhat larger than the average estimates reported above (see the Figure). This sizable offset may partly stem from the wealth effects associated with booming stock markets but it may also reflect the perceived success of recent fiscal consolidations—partly associated with their size, their composition, and the institutional support provided by fiscal rules and improved transparency.

Fiscal developments do not appear to have been the driving force behind current account trends across advanced economies, despite the past popularity of the "twin deficits hypothesis" to explain the U.S. current account deficit in the 1980s and early 1990s (see the Figure). Estimates of the impact of changes in relative fiscal positions on the current account in industrial countries show a small effect (not always significant) of between 10 and 40 percent.[9] In any case, fiscal positions for the Anglophone and the euro area countries have been highly correlated over time, so that relative fiscal positions have varied much less than their external counterparts. Hence, whatever the fiscal offset might be, factors other than fiscal policy—such as relative business cycles and asset market developments—appear to be the primary drivers of external positions.

[9]For recent empirical analysis of the impact of fiscal balance on external balance over the past decades, see, for example, Menzie D. Chinn and Eswar S. Prasad, "Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration," IMF Working Paper No. 00/46 (Washington: International Monetary Fund, March 2000); Hamid Faruqee and Guy Debelle, "Saving-Investment Balances in Industrial Countries: An Empirical Investigation," in IMF Occasional Paper No. 167, *Exchange Rate Assessment: Extensions of the Macroeconomic Balance Approach,* ed. by Peter Isard and Hamid Faruqee (Washington: International Monetary Fund, 1998); Philip Lane and Roberto Perotti, "The Trade Balance and Fiscal Policy in the OECD," *European Economic Review,* Vol. 42 (1998) pp. 887–895; and Michel Normandin, "Budget Deficit Persistence and the Twin Deficit Hypothesis," *Journal of International Economics,* Vol. 49 (1999) pp. 171–193.

ing concerns about the sustainability of public debt.[21]

These considerations suggest that the fiscal consolidations of the 1990s are more likely to be successful than those of the 1980s. However, caution is needed. Successful consolidations are defined over a relatively short period and can be reversed over time. Many of the consolidations of the 1980s unraveled during the early 1990s—for example, in the United Kingdom. This highlights the importance of factors other than just the composition of fiscal adjustment. In particular, sound fiscal frameworks—considered in the following section—may help reinforce political commitment to fiscal restraint in the face of pressures for expansion.

[21]Examples of successful fiscal consolidations include the fiscal adjustments experienced by the United Kingdom in 1979–90, Ireland in 1987–89, and Denmark in 1983–86. For examples of unsuccessful fiscal consolidations, the literature points to Ireland in 1982–84 and Sweden in 1983–90.

The Role of Institutional Reform[22]

The reductions in fiscal deficits since 1993, and associated macroeconomic benefits, have occurred in the context of widespread reforms to fiscal frameworks.[23] These institutional reforms have been aimed primarily at achieving and maintaining fiscal consolidation, while continuing to leave room for fiscal policy to dampen the business cycle through automatic

[22]This section draws on Richard Hemming and Michael Kell, "Promoting Fiscal Responsibility: Transparency, Rules, and Independent Fiscal Authorities," paper prepared for a Bank of Italy workshop on fiscal rules held in Perugia, Italy (February 1–3, 2001).

[23]The major exception, in terms of both consolidation and institutional reform, is Japan.

stabilizers and (if necessary) policy actions. This section discusses the nature of these reforms and the role they have played in the recent fiscal consolidations.

Recent institutional reforms can be classified into three broad, but not mutually exclusive, groups (details of these reforms in some advanced and developing economies are set out in Box 3.4).

- *Formal deficit and debt rules.* The main examples of this approach are the countries of the euro area, which are bound by the Maastricht Treaty and subsequent Stability and Growth Pact limit of 3 percent of GDP on the deficit; and the United Kingdom, which since 1997 has operated a golden rule (borrowing only to finance capital spending) and a sustainable investment rule, which limits net debt to 40 percent of GDP over the cycle. Several countries have deficit and debt rules at the subnational level.[24]
- *Expenditure limits.* Other countries, such as Sweden and the United States, as well as Finland and the Netherlands in the euro area, have put more emphasis on expenditure limits, supported by procedural requirements, whereby proposals resulting in overruns in certain expenditure areas must be accompanied by offsetting expenditure cuts elsewhere or by revenue increases. Canada has also focused on instituting a rigorous expenditure review process.
- *Transparency.* New Zealand pioneered an approach to fiscal management that places primary and explicit emphasis on transparency (generally defined as being open to the public about the structure and functions of government, public sector accounts, and fiscal policy intentions and projections), with the Fiscal Responsibility Act of 1994.[25] Australia and the United Kingdom have since adopted similar approaches. The key elements that these frameworks share are an explicit legal basis, an elaboration of guiding principles for fiscal policy, a requirement that objectives are clearly stated, an emphasis on the need for a longer-term focus to fiscal policy, and demanding requirements for fiscal reporting to the public.

These approaches have often been combined and have, in some instances, evolved over time in the light of experience. For example, the United Kingdom, Australia, and New Zealand combine legally mandated transparency with rules or objectives for deficits and debt, and the Netherlands uses expenditure and revenue rules to meet its requirements under the Stability and Growth Pact. The United States now places relatively more emphasis on expenditure rather than deficit rules, while the deficit and debt criteria of the Maastricht Treaty have been complemented by the provisions of the Stability and Growth Pact. The evolution of fiscal frameworks has been driven in some cases by a change in focus from improving an initially weak fiscal position toward maintaining a sound position over the medium term. In the former case, fairly inflexible ceilings on deficits or expenditure have typically been applied; in the latter, more sophisticated considerations generally come into play, including imposing debt ceilings, specifying rules in cyclically adjusted terms, and emphasizing fiscal transparency.

There are two main justifications for these institutional reforms. First, fiscal rules and transparency strengthen fiscal discipline, thus helping governments maintain commitments to improve public finances: while rules limit the influence of contingent events on fiscal outcomes, transparency increases accountability for the design

[24]All but two U.S. states have laws requiring the submission, passing, or signing of balanced budgets and limiting the ability of states to issue debt. Nine provinces and territories in Canada have fiscal rules, with balanced budgets being required in all but one case. Italian local governments are allowed to take on debt only for the purpose of financing investment projects. In the euro area, Austria, Belgium, Italy, and Spain have internal stability pacts to ensure that the finances of subnational governments are consistent with commitments under the Stability and Growth Pact.

[25]George Kopits and Jon Craig, *Transparency in Government Operations*, IMF Occasional Paper No. 158 (Washington: International Monetary Fund, 1998).

Box 3.4. Fiscal Frameworks in Advanced and Emerging Market Economies

Following the classification set out in the main text, countries and regions can to some extent be grouped according to whether their respective fiscal frameworks emphasize deficit and debt rules, expenditure rules, or transparency. This categorization is somewhat arbitrary, however: some countries could be assigned to more than one group, and the categories are not mutually exclusive.

Frameworks Emphasizing Deficit and Debt Rules

Euro area. Under the 1992 Maastricht Treaty, countries seeking to participate in the Economic and Monetary Union (EMU) had to aim to achieve general government deficits not in excess of 3 percent of GDP and gross government debt not in excess of 60 percent of GDP. These reference levels could be exceeded, if the excess deficit was small and either temporary or had declined significantly, and if debt was on a clear downward path. Building on these gains in fiscal discipline, the 1997 Stability and Growth Pact requires euro area countries (and other countries in the European Union) to achieve fiscal positions that are close to balance or in surplus, so that they can respect the 3 percent deficit ceiling during normal cyclical downturns. There is a commitment to achieve this target by 2002 at the latest. In addition, some euro area countries have their own fiscal rules. For example, in Germany, the Basic Law requires a balanced current budget (i.e., a golden rule) which limits borrowing to investment expenditure under normal economic circumstances.

Canada. Since 1993, the federal budget has been based on three key elements: a two-year planning horizon based on systematically prudent macroeconomic assumptions and an ex ante balanced budget target; the inclusion of an annual contingency reserve; and a commitment to use the latter, when it is not needed, to pay down public debt. The government's *Budget Plan 2000* included commitments to maintaining balanced budgets in 2000/01 and 2001/02 and to keeping the debt-to-GDP ratio on a permanent downward path.

Switzerland. A constitutional amendment in 1998 required the federal government to attain budget balance by 2001. Once this has been achieved, a new constitutional amendment will require that a year-by-year ceiling be set on the level of central government expenditure, with the aim of ensuring budget balance over the cycle.

Frameworks Emphasizing Expenditure Rules

United States. The 1990 Budget Enforcement Act (BEA) replaced the relatively unsuccessful deficit targets of the 1985 Gramm-Rudman-Hollings Act with more complex limits on spending (excluding social security and Medicare). Discretionary spending categories are defined and capped in nominal terms for five years ahead; if these caps are exceeded, a uniform percentage reduction in spending in that category is required. For revenues and mandatory spending (spending controlled by permanent laws such as Medicare), the BEA requires that changes be financed on a pay-as-you-go basis, implying that any law that reduces revenue or increases spending must be offset by other measures to avoid triggering uniform cuts in certain mandatory spending programs. Discretionary spending caps and pay-as-you-go legislation are set to expire in 2002.

The Netherlands. The 1998 Coalition Agreement, supported by subsequent budget memoranda, sets ceilings for real central government expenditure over the period 1999–2002. There is also a rule that mandates how deviations in projected revenue from its baseline path will be allocated (in the case of "upturns") and offset (in the case of "downturns").

Sweden. The 1996 State Budget Act sets a ceiling for total central government expenditure (consistent with a surplus of 2 percent of GDP on average over the cycle) for the coming budget year and the following two years. Indicative nominal funding levels are set for each of 27 expenditure areas, together with a "budget margin" to provide a buffer against forecasting errors. Cost overruns in one program have to be financed by reductions in other expenditure areas or by increases in revenue.

Box 3.4 *(concluded)*

Frameworks Emphasizing Transparency[1]

United Kingdom. The current fiscal strategy embeds deficit and debt rules within a framework that places particular emphasis on transparency. In 1997, the government introduced two fiscal rules that apply over the cycle: a golden rule, which requires that the government should borrow only to finance investment, and a sustainable investment rule, which requires that net public sector debt as a proportion of GDP should be held at a stable and prudent level, currently set at 40 percent of GDP. A complementary Code for Fiscal Stability, emphasizing transparency, was added in 1998. The Code commits the government to specify its fiscal objectives and operating rules, and justify any changes to them; disclose any decisions and circumstances that might have a material impact on the economic and fiscal outlook; ensure best practice accounting methods are used; and publish a range of fiscal documents.

Australia. The Charter for Budget Honesty enacted in 1998 requires the government to publish an annual fiscal strategy statement that indicates long-term fiscal policy objectives and sets fiscal targets for the following three years. The Charter does not specify any particular fiscal rule or numerical targets. However, under the current fiscal strategy, the primary objective is to achieve fiscal balance on average over the economic cycle. Supplementary objectives are to maintain fiscal surpluses over the forward estimates period while economic growth prospects remain sound; to avoid an increase in the overall tax burden from its 1996–97 level; and to improve the general government net asset position over the medium to longer term.

New Zealand. The Fiscal Responsibility Act of 1994 mandates that the government should be clear about the objectives and consequences of its policies, through, among other actions, strengthened reporting requirements. The Act also stipulates that the government should be judged against its ability to reduce debt to prudent levels by achieving operating surpluses each year; ensure that over a reasonable period of time total operating expenses do not exceed total operating revenues; achieve appropriate levels of government net worth; manage risks prudently; and maintain predictable and stable tax rates. While the Act does not contain numerical targets, the government must set out each year its "broad strategic priorities" for the budget and for the next two years and its long-term fiscal policy objectives.

Recent Improvements in Fiscal Frameworks in Emerging Market Economies

Argentina. The 1999 Fiscal Responsibility Law, as modified in December 2000, sets a ceiling for the deficit and requires that it should decline so that balance is achieved in 2005. Provincial governments undertook to enact similar laws. The 1999 legislation also established a Fiscal Stabilization Fund, financed through tax revenues, to dampen the impact of cyclical fluctuations and external shocks on government revenues. In addition, the law prohibits the creation of off-budget items, sets out new reporting requirements, and provides for penalties for civil servants who do not implement the budget.

Brazil. The 2000 Fiscal Responsibility Law prohibits financial support operations among different levels of government, sets limits on personnel expenditure, and requires that limits on the indebtedness of each level of government be set by the senate. It also includes measures to improve transparency and accountability.

Peru. The 1999 Fiscal Transparency Law sets limits on the deficit and the growth of government expenditure. It also established a fiscal stabilization fund to ensure that fiscal savings in good years can be used during recessions and contains measures to encourage transparency.

Similar fiscal responsibility legislation is being drafted in *Colombia* and is before parliament in *India.*

[1]The frameworks of the United Kingdom, Australia, and New Zealand, which are described in this section, have motivated a more general effort to improve fiscal transparency. In particular, these frameworks provided the starting point for work at the IMF that resulted in the *Code of Good Practices on Fiscal Transparency—Declaration of Principles,* which was published in 1998. The Code provides a benchmark for assessing fiscal transparency and as such represents a standard of fiscal transparency to which all countries should aspire.

and implementation of fiscal policy. The United Kingdom, for example, introduced deficit and debt rules after having experienced in the early 1990s the unwinding of a sizable fiscal adjustment achieved during the 1980s. Second, problems caused by lax fiscal policy can spill from one jurisdiction to the next within a currency area or a federation. This would provide justification for the deficit and debt limits in a European framework under the Maastricht Treaty.

Assessing Institutional Reforms

The advantage of deficit rules is that, compared with other approaches, they are clear and focus on a generally well-understood macroeconomic aggregate. The main criticism of deficit rules in general, and balanced budget rules in particular, is that they are inflexible and therefore tend to be procyclical.[26] This is an important issue for national governments, although less so for subnational governments owing to the openness of regions within a country.[27] Deficit rules for national governments have increasingly been refined to address this problem and now generally apply either to a cyclically adjusted deficit measure or an average over the economic cycle. Thus, these rules allow the operation of automatic stabilizers and possibly provide some room for discretionary policy within the cycle.[28] This increased flexibility comes at a cost, however, since the benchmark against which fiscal performance is to be judged is made more complicated (especially if estimates of potential output are revised, as discussed earlier). This increases the scope to bypass the rules, making them potentially harder to enforce, which in turn undermines credibility.

Debt ceilings can be a useful adjunct to deficit rules, although the definition of an appropriate ceiling is difficult.[29] In practice, debt ceilings have been driven not by calculations based on theory but rather by concerns about reducing high debt levels, and have thus generally been chosen on the basis of circumstances of individual countries.[30] However, if debt is well below the ceiling, there may be significant room for maneuver in the short term and little restraint on policy.[31]

Expenditure rules typically impose ceilings on specific areas of expenditure—for example, discretionary as opposed to nondiscretionary and, in some cases, for particular programs.[32] The principal advantages of capping expenditure are that this process is well understood by players in

[26]Alberto Alesina and Roberto Perotti, "Budget Deficits and Budget Institutions," in *Fiscal Institutions and Fiscal Performance*, ed. by James Poterba and Jurgen Von Hagen (Chicago: University of Chicago Press, 1999).

[27]Tamim Bayoumi and Barry Eichengreen, "Restraining Yourself: The Implications of Fiscal Rules for Economic Stabilization," *IMF Staff Papers*, International Monetary Fund, Vol. 42 (March 1995).

[28]According to the 1997 Resolution of the European Council on the Stability and Growth Pact (European Council Resolution 97/C), the "close to balance requirement" under the Pact also leaves room for automatic stabilizers to operate (and in some cases for discretionary measures) without breaking the 3 percent of GDP deficit limit under the Maastricht Treaty. See Michael Artis and Marco Buti, " 'Close to Balance or in Surplus': A Policy-Maker's Guide to the Implementation of the Stability and Growth Pact," *Journal of Common Market Studies*, Vol 38, No. 4 (November 2000).

[29]Theory provides little guidance. Three distinct approaches are contained in Robert J. Barro, "On the Determination of Public Debt," *Journal of Political Economy*, Vol. 87 (October 1979) pp. 940–71; Gian Maria Milesi-Ferretti and Nouriel Roubini, "On the Taxation of Human and Physical Capital in Models of Endogenous Growth," *Journal of Public Economics*, Vol. 70 (November 1998); and S. Rao Aiyagari and Ellen R. McGrattan, "The Optimum Quantity of Debt," *Journal of Monetary Economics*, Vol. 42 (October 1998) pp. 447–69.

[30]See, in this regard, the debate on eliminating the U.S. federal government debt summarized in recent papers prepared for the September 2000 Brookings Panel on Economic Activity: for example, Vincent Reinhart and Brian Sack, "The Economic Consequences of Disappearing Government Debt," *Brookings Papers on Economic Activity*: 2, Brookings Institution (2000) and, in the same issue, Michael J. Fleming, "Financial Market Implications of the Federal Debt Paydown."

[31]The choice of debt measure is also an issue: gross debt can be easily measured and compared across countries, but net debt is the best indicator to assess fiscal sustainability, although it presents substantial measurement difficulties (in terms of which assets to consider and how to value them).

[32]This interpretation excludes the medium-term expenditure frameworks that some countries (e.g., the United Kingdom) have put in place.

budget negotiations and the wider public, and it tackles deficit bias by addressing the principal source of rising deficits, namely political and institutional pressures to increase expenditure. Governments are also made accountable for what they can control most directly, which is not the case with deficits, given that they are highly dependent on economic developments. Ceilings on specific expenditure items can impose fiscal discipline while allowing the operation of automatic stabilizers on both the revenue and on the expenditure side, and can therefore operate in effect like a cyclically adjusted deficit rule. In contrast, caps on overall spending could force unwarranted cuts in discretionary spending items during a cyclical downturn in order to support higher transfer spending.

Fiscal transparency helps to relax the trade-off between the need for flexibility and discipline in fiscal policy. A commitment to transparency should improve credibility generally and increase the chances that a government can retain credibility in the event that it needs to temporarily deviate from, or substantively change, its fiscal rules or targets. In this context, it is noteworthy that Japan introduced a rules-based approach in 1997 without a commitment to transparency, but was forced to abandon this approach in the wake of the Asian crisis. As noted above, New Zealand, Australia, and the United Kingdom have recently introduced legislation specifically directed at enhancing transparency. Among other things, these frameworks address the standard criticism of rules—namely, that rules encourage creative accounting—by adopting uniform accounting and classification standards and setting demanding reporting requirements as a means of encouraging independent scrutiny.[33] Hence, transparency legislation can complement other elements of a fiscal framework, such as deficit rules. Legislation, however, is not the only means to achieve fiscal transparency; in other advanced economies, such as Canada, Sweden, and the United States, transparency is associated with a long tradition of open government.

The Impact of Institutional Reform

As fiscal developments in OECD countries in the 1990s have shared a common pattern, it is difficult to see substantial differences in behavior between countries such as Australia, New Zealand, and the United Kingdom, which have most emphasized fiscal frameworks based on transparency; the overall group of EU countries, with the strongest rules-based approach to fiscal policy; and North America, where the United States in particular places more emphasis on procedural rules. Against this background, the specific role of fiscal rules and transparency in contributing to fiscal adjustment is not immediately obvious. However, some other evidence points in this direction, especially for the euro area and North America.

For the euro area, one recent study notes that fiscal rules have been associated with stronger fiscal performance and have been less reactive to cyclical fluctuations and monetary policy changes in the 1990s than in earlier periods.[34] This difference has been ascribed to a "Maastricht effect." The effect appears to have been more pronounced in high-debt countries—Greece, Italy, and Belgium—as well as in countries that experienced large increases in debt ratios in the period preceding Maastricht, such as Finland, the Netherlands, and Portugal. This may be viewed as evidence of the effectiveness of strict quantitative targets, but one could also argue that the underlying political commitment to qualify for EMU and concerns about high debt levels were the real forces behind the large fiscal

[33]See Gian Maria Milesi-Ferretti, "Good, Bad, or Ugly? On the Effects of Fiscal Rules with Creative Accounting," IMF Working Paper 00/172 (Washington: International Monetary Fund, October 2000). The elaborate peer review process in the European Union, combined with common principles of fiscal accounting, is intended in part to limit the scope for creative accounting.

[34]Von Hagen, Hallett, and Strauch, "Budgetary Consolidation in EMU." The empirical evidence presented in this and in similar studies should be regarded cautiously because the effectiveness of both transparency and fiscal rules, and especially rules supposed to apply over the cycle, can only be assessed over an extended period.

adjustment during the 1990s. [35] Evidence from U.S. state governments also indicates that balanced budget rules have lowered fiscal deficits and public debt, but at the cost of more limited automatic stabilizers.[36]

For the U.S. federal government, several studies have concluded that the specific expenditure ceilings embodied in the Budget Enforcement Act have played a significant role in reducing expenditure. This approach was better suited to the U.S. budget process than the earlier deficit reduction targets contained in the Gramm-Rudman-Hollings Act, which were so sensitive to economic and technical factors that they threatened large sequestrations that could not be implemented, thereby undermining credibility.[37] In Canada, expenditure reviews across government to identify specific areas where permanent cuts would be feasible and reforms to the expenditure management system were deemed largely successful in contributing to fiscal improvements.[38]

Transparency also seems to have played a central role in locking in fiscal adjustment and preventing the unwinding of previous reforms, as in New Zealand, for example. However, the New Zealand legislation did not prevent recent slippage relative to long-term fiscal goals, and this has cast some doubt on whether transparency by itself is sufficient to promote fiscal responsibility.[39] In the United Kingdom, the combination of transparency and fiscal rules has supported the adjustment process. The use of deliberately prudent forecasting assumptions, together with unexpected structural improvements to the level of receipts, has now created substantial room for maneuver within current fiscal rules; hence, the role of transparency in sustaining fiscal policy credibility will continue to be very important.[40]

Fiscal rules and frameworks are a recent innovation, so definitive statements are difficult to make. Nevertheless, the real test appears likely to come during an economic slowdown when pressures emerge to unwind recent fiscal adjustment by more than can be justified under the established rules. In particular, the expenditure reductions that have spearheaded recent adjustment may be significantly reversed. Such a circumstance is tailor made for fiscal rules, and especially expenditure ceilings, which can help to directly contain reversals on the spending side while providing scope for countercyclical fiscal policy, and a debt ceiling, which addresses longer-term sustainability. One conclusion is clear. The credibility of fiscal rules and objectives is strengthened if such measures are accompanied by enhanced fiscal transparency, as this openness complements a rules-based approach in three ways: by removing any tendency to be nontransparent to meet rules; by facilitating judgments of actual fiscal performance against

[35]However, note that while adjustment in the Netherlands may have been primarily driven by EMU considerations, the switch to a fiscal framework emphasizing expenditure ceilings in 1994 has been judged to have resulted in a smoother and more predictable budget process, as discussed in *OECD Economic Surveys: The Netherlands* (Paris: Organization for Economic Cooperation and Development, 1998).

[36]See James M. Poterba, "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy*, Vol. 102 (1994); James E. Alt, "Credibility, Transparency, Accountability, Institutions," paper prepared for the Annual Meeting of the American Political Science Association, Washington, DC (September 2000); and Bayoumi and Eichengreen "Restraining Yourself."

[37]James M. Poterba, "Do Budget Rules Work?" in *Fiscal Policy: Lessons from Empirical Research*, ed. by Alan Auerbach (Cambridge, Mass.: MIT Press, 1997), pp. 53–86; *OECD Economic Surveys: The United States 1999* (Paris: Organization for Economic Cooperation and Development, 1999); and Allan Schick, "A Surplus, If We Can Keep It," *The Brookings Review*, Brookings Institution, Vol. 18, No. 1 (2000).

[38]See *OECD Economic Surveys: Canada 1998–1999* (Paris: Organization for Economic Cooperation and Development, 1999); and OECD, "Managing Structural Deficit Reduction," Public Management Occasional Paper No. 11 (Paris: Organization for Economic Cooperation and Development, 1996).

[39]*OECD Economic Surveys: New Zealand 1999* (Paris: Organization for Economic Cooperation and Development, 1999.)

[40]IMF, "United Kingdom: Staff Report for the 1999 Article IV Consultation" (Washington: International Monetary Fund, 2000), available at http://www.imf.org/external/pubind.htm. Finland and the Netherlands also incorporate cautious growth assumptions in their fiscal projections.

rules, which makes transparency an essential requirement for rules to be effective; and by allowing justifiable flexibility in the application of rules.

Future Fiscal Performance

A much more significant test to fiscal positions and frameworks will come from the economic pressures arising from the substantially older demographic structure that the advanced economies will face in the first half of the twenty-first century. The economic challenges associated with aging populations are unique—not simply because of the unprecedented nature of these developments, but also because the pressures are fairly predictable. Of even greater significance is that a number of reasonably well-recognized policy measures could, if implemented in a timely manner, largely offset the adverse consequences of aging on output growth and fiscal balances. Unfortunately, though, while some countries (e.g., the United Kingdom and Sweden) have taken substantial steps in recent years to put their public pension systems on a sounder financial footing, reforms efforts elsewhere (e.g., Germany and France) have been of only limited scope and marked by controversy and delay. Such delays will only increase the cost of the adjustments that will eventually be required.

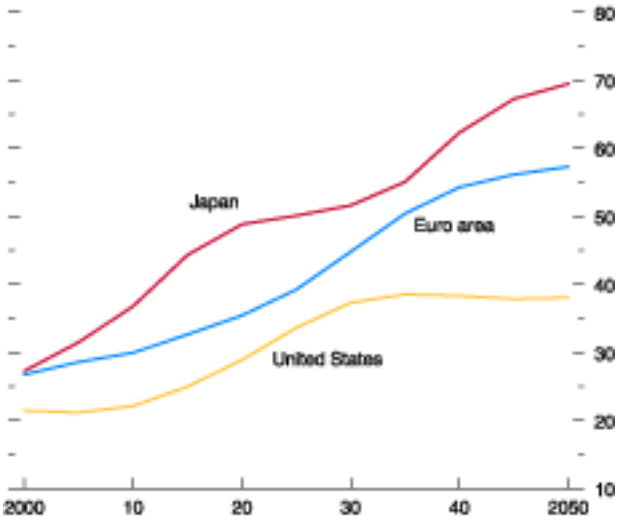
Demographic and Fiscal Outlook

Because of the dramatic rise in births immediately following World War II and the subsequent fall in fertility, the advanced economies face a significant aging of their population structure over the next several decades. The coming retirement of the baby boom generation will lead to a steady rise in elderly dependency ratios, initially in Japan and then in the European Union and the United States (Figure 3.7).

Though interrelated in practice, it is useful to distinguish between the consequences of aging for fiscal balances (considered in this section) and for the real economy (considered below).

Figure 3.7. Elderly Dependency Ratios[1]
(Percent)

Elderly dependency ratios will rise significantly over the next few decades as the baby boom generation retires.

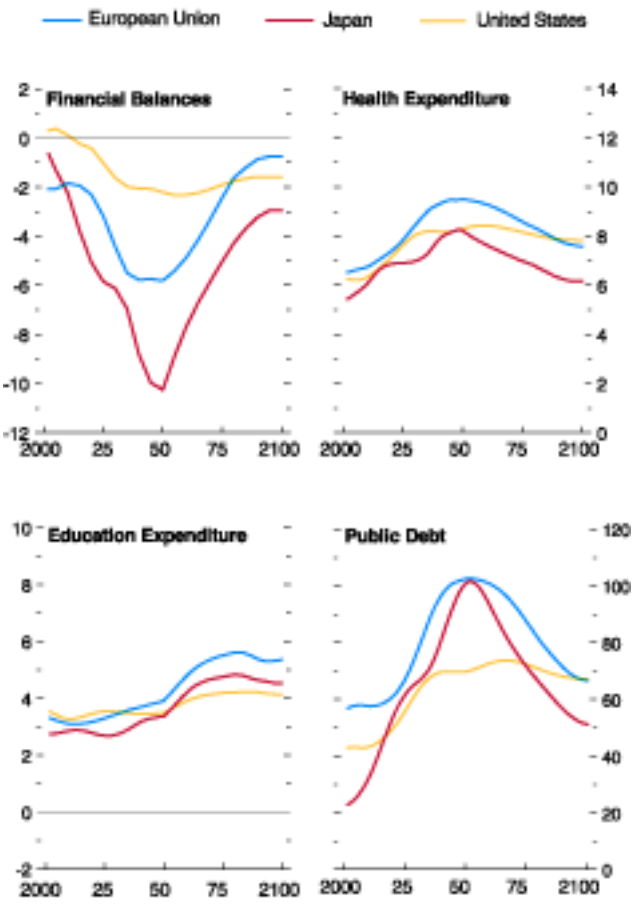


Source: United States Census Bureau.
[1]Ratio of population aged 65 and older to population aged 20–64.

In terms of fiscal balances, public pension systems in the advanced countries have been established either with partial pre-funding (as in the United States, Japan, and Canada) or on a largely unfunded "pay-as-you-go" basis (as in many EU countries).[41] In general, however, virtually all pension systems face substantial net liabilities in the decade ahead, even after taking into account asset positions and projected contributions from current and future workers. Fiscal projections produced by the OECD and European Union, each using global macroeconomic models, suggest generally similar patterns.[42] As a direct result of meeting liabilities generated by current pension schemes, fiscal positions over the next 50 years would reach a peak deterioration of around 2 to 3 percent of GDP in the United States, 4 to 5 percent in the European Union (although very little change in the United Kingdom), and 10 percent in Japan (OECD projections are shown in Figure 3.8).[43] Recent reforms to pension systems—notably in Japan—have helped to reduce these projected

Figure 3.8. Direct Effects of Aging on Government Finances
(Percent of GDP)

Population aging is likely to impose a significant fiscal burden, especially through increases in pension and health expenditures.



Source: Dave Turner, Claude Giorno, Alain de Serres, Ann Vourc'h and Pete Richardson, "The Macroeconomic Implications of Aging in a Global Context," OECD Economics Department Working Paper No. 193 (Paris: OECD, 1998).

[41]With pre-funding, contributions to the pension scheme exceed payouts while dependency ratios are still relatively low, leading to asset accumulation by the pension fund. These assets, possibly combined with contributions from concurrent workers, can then be drawn on to provide pensions to individuals retiring when dependency ratios are high. With a purely unfunded system, contributions from concurrent workers are the sole source of finance for public pensions of concurrent retirees.

[42]See Dave Turner, Claude Giorno, Alain De Serres, Ann Vourc'h, and Pete Richardson, "The Macroeconomic Implications of Ageing in a Global Context," OECD Economics Department Working Paper No. 193 (Paris: Organization for Economic Cooperation and Development, 1998); and Kieran McMorrow and Werner Roeger, "The Economic Consequences of Ageing Populations," Economic Papers No. 138 (Brussels: European Commission, November 1999). National-level pension simulations for EU countries, using a generally similar set of underlying economic assumptions, are reported in Economic Policy Committee, "Progress Report to the Ecofin Council on the Impact of Ageing Populations on Public Pension Systems," EPC/ECFIN/581/00 (Brussels: European Commission, November 2000).

[43]The OECD's reference scenario draws on United Nations' population projections to 2050. These show population growth turning negative in Japan and the European Union after 2010, declining to around zero in the United States and other "fast-aging" regions by 2050, while

imbalances, but substantial pressures remain (see Box 3.1).

In addition to pension benefits, rising health care costs as the population ages will impose a further burden on public finances. Health care costs per capita for the elderly are several times those for the non-elderly; furthermore, overall health expenditures have been rising as a share of GDP over recent decades, despite much more favorable demographic trends.[44] In the relatively optimistic scenario (compared with recent trends) where per capita treatment costs rise at the same rate as real GDP, public health spending in most advanced economies could increase by around 2 to 3 percent of GDP over the next 50 years as a direct result of aging (Figure 3.8). Little if any offset can be expected from reduced public education expenditures: these are projected to remain roughly constant as a share of GDP (Figure 3.8).

Without reforms to boost revenue or contain spending, the age-related expenditure pressures would lead to a rapid and significant buildup of public debt. Net debt as a share of GDP could increase by around 80 percent in Japan by 2050, by 45 percent in the European Union, and 30 percent in the United States (Figure 3.8). These projections assume, however, that the debt buildup is limited through tax increases.[45] EU estimates, prepared without such a constraint, indicate that debt in the European Union could increase by around 150 percent of GDP by 2050.[46]

Generational accounting provides further insights into the fiscal pressures arising from aging populations. By explicitly taking into account the government's intertemporal budget constraint, this methodology assesses the present value of taxes (net of transfer payments received) that individuals of different age cohorts need to pay over their remaining lifetimes to finance the future stream of public expenditures. Recent studies have drawn attention to the very high remaining net taxes facing young and middle-aged members of many advanced economies under current tax and transfer policies, partly because current transfers to the elderly are often generous compared to earlier payments into the system.[47] Moreover, on the basis that net government liabilities not met by current generations will have to be paid by future generations, current policies imply that generations yet to be born could face much higher lifetime net taxes than those arising at present. Restoring generational balance would require either substantial reductions in government spending on current generations, increases in taxes, or some combi-

staying above 1 percent per year in the remaining "slow-aging" parts of the world until the 2040s. By around 2080, population growth is assumed to converge at around ½ percent per year. Age-specific participation rates are assumed to be constant, as are unemployment rates. Growth in labor-augmenting technical progress converges to about 1½ percent per year. On this basis, annual GDP growth in Japan and the European Union falls to under ½ percent in the 2030s, and to around 1.5 to 1.7 percent in the United States and other fast-aging regions, while growth in slow-aging regions remains above 2 percent until the mid-2050s. Growth in each region converges to just below 2 percent in the final quarter of the century.

[44]The OECD estimates that the ratio of health costs for the elderly compared with the non-elderly is 4¾ in Japan, 4¼ in the United States, and 3 in the European Union. If per capita treatment costs were to rise at a one percent faster rate than GDP growth (i.e., more in line with recent trends), public health care spending would increase by 4 to 5 percent of GDP by 2030, whereas public health spending would be largely contained around current levels if per capita health costs grow 1 percent slower than GDP growth. See Deborah Roseveare, Willi Leibfritz, Douglas Fore, and Eckhard Wurzel, "Ageing Populations, Pension Systems and Government Budgets: Simulations for 20 OECD countries," OECD Economics Department Working Paper No. 168 (Paris: Organization for Economic Cooperation and Development, September 1996).

[45]In particular, the OECD estimates include a "debt containment" rule, whereby the increase in net public debt is limited to six times the increase in net public spending (as shares of GDP). In Japan, the policy approach is to raise social security contribution rates as needed to ensure the solvency of the system. If this approach is maintained, the impact on the fiscal position would therefore be less than that suggested by the OECD and EU estimates.

[46]Kieran McMorrow and Werner Roger, "The Economic Consequences of Ageing Populations."

[47]Laurence Kotlikoff and Willi Leibfritz, "An International Comparison of Generational Accounts," in *Generational Accounting around the World*, ed. by Alan Auerbach, Laurence Kotlikoff, and Willi Leibfritz (Chicago: University of Chicago Press, 1999). See also "Uses and Limitations of Generational Accounting," Box 5 in the May 1996 *World Economic Outlook*.

nation of these measures.[48] As noted earlier, delaying such policy reforms would only increase the scale of the required adjustments.

Saving Public Pension Systems

The demographic trends outlined above are expected to lead to significantly slower growth rates of aggregate output and average living standards over the next half century. For example, in the OECD scenario discussed earlier, growth in per capita GDP is projected to fall to around 1 percent a year in the United States, the European Union, and Japan over the next two to three decades, compared with growth in the 1990s averaging around 1½ to 2 percent. Regardless of whether pension systems are public or private, funded or unfunded, the fundamental concern arising from rising dependency ratios is how a potentially more slowly growing pool of output will be shared between a relatively smaller workforce and a relatively larger dependent population. From this perspective, policy responses to the fiscal and broader economic consequences of aging populations need to be assessed not only in terms of how they will affect *claims* on future output, but also how they will influence the *level* of future output that will be available. Policies affecting output shares may become less burdensome and divisive, the greater the total output that is available.

As considered in subsequent sections, a range of reforms to domestic pension systems has aimed to reduce claims of current and prospective retirees on future output. But, in addition, there is substantial scope for reform to counteract the projected slowing in growth of output and living standards, particularly by improving labor market performance. Increased prefunding of pension liabilities could also help to ease the sharing of the pension burden across generations and, by increasing national saving and lowering interest rates, could contribute to faster output growth. Setting the output constraint described above in an international context provides a further perspective on policies that could help address the challenge of aging populations. In this case, the focus needs to be on production and distribution of global rather than national output. In particular, increasing globalization offers the prospect of larger saving flows from the advanced economies supporting investment and growth in more slowly aging developing countries. These saving patterns would then reverse as output slows in fast-aging regions, with domestic consumption in these countries supported through increased imports. These points are considered in more detail below.

Domestic Reforms

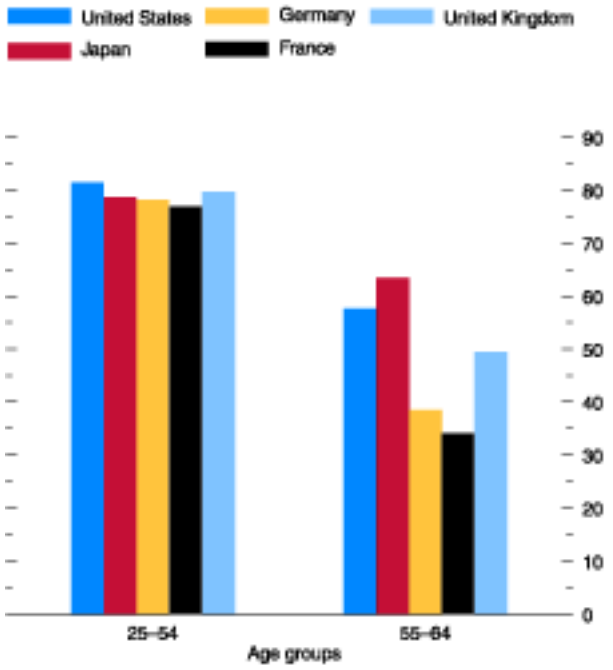
National responses to pension system imbalances have in many cases focused on reducing pension entitlements of future retirees. For example, pension replacement rates compared with past earnings have been reduced by linking pensions to lifetime earnings rather than to earnings just in the years immediately preceding retirement. In some countries (e.g., Australia and New Zealand), flat rate rather than earnings-linked pensions are provided. Pensions have been increasingly indexed to prices rather than wages. This implies that, with productivity growth, the purchasing power of pensioners relative to wage earners would fall over time, although some countries have introduced measures to limit the extent of this decline.

In addition, however, more attention could be focused on reforms aimed at improving labor market performance, which could go a long way toward supporting output growth and fiscal positions as populations age. This is particularly the case in Europe, where the scope for increasing the employment of older age groups (e.g., 55–64), both through higher participation and lower unemployment, appears to be substantially

[48]For example, under the assumptions employed by Kotlikoff and Leibfritz in "An International Comparison of Generational Accounts," immediate cuts of around 20 to 40 percent in transfer spending would be needed in most of the large industrialized economies, or across-the-board tax increases of 10 to 15 percent in the United States, Japan, and Germany, and over 60 percent in Italy.

Figure 3.9. Employment—Population Ratios by Age, Selected Countries, 1999
(Percent)

There is substantial scope for reforms, especially in the euro area, to boost employment among older age groups.



Sources: OECD Labor Force Statistics; and United States Census Bureau.

greater than in the United States and Japan (Figure 3.9). Female participation rates also remain low in some euro area countries (for example, Spain), due in part to restrictions on the use of part-time employment. Simulations by the European Union indicate that a comprehensive package of labor market reforms that led to a 10 percentage point increase in the overall labor force participation rate—bringing it to around the same level as in the United States and Japan—would largely eliminate the adverse impact of aging on future GDP growth. Similarly, projected pension expenditures in Germany, France, and Italy would take on a much flatter profile if participation and unemployment in these countries gradually converged on rates recently reached by the best three EU performers.[49]

A moderate extension of the retirement age (or contribution period) needed to obtain a full pension could form part of such a package. Various studies have indicated that this reform would substantially reduce the fiscal burden of pensions, both by increasing labor force participation, output, and hence government revenues, and by reducing pension payouts.[50] In the OECD projections discussed earlier, a gradual increase of five years in the retirement age in the United States, Japan, and the European Union would roughly halve the fiscal deficits projected

[49]Specifically, these adjustments imply an increase of close to 10 percentage points in the EU employment rate by 2010 (from 61 to around 70 percent), and a further increase of nearly 10 percentage points by 2045. Stronger productivity growth and more favorable demographic trends (than in the baseline scenario) are also assumed. With economic growth strengthening as a result, pension expenditures in Germany would rise by a peak level of just under 2½ percent of GDP over their 2000 level (compared with a rise of nearly 4½ percent of GDP without these labor market improvements); the corresponding peak increase would be 2½ percent of GDP for France and ½ percent for Italy, compared with 4 percent of GDP for France and 1½ percent for Italy without reforms.

[50]See, for example, Dave Turner and others, "The Macroeconomic Implications of Ageing in a Global Context;" and Sheetal K. Chand and Albert Jaeger, "Aging Populations and Public Pension Schemes," IMF Occasional Paper No. 147 (Washington: International Monetary Fund, 1996).

for 2050. This reform, as with other labor market measures noted above, would need to be coordinated with reductions in the strong disincentives that exist under current tax and transfer systems for labor force participation by older workers.[51]

Pre-Funding Pension Liabilities

If the government seeks to smooth welfare across generations, then part of the future increase in transfers and expenditures would be met by increased net taxes (or "mandatory savings") on current workers. Primary fiscal surpluses would rise during the working lives of the current large cohort, enabling public debt to be reduced and, in some cases, allowing a buildup of net public financial assets at home and abroad. During the retirement of this baby boom generation, part of the cost of its pension benefits will be financed by public dissaving and part through taxes paid by the working generation. Implicitly, then, this approach would be equivalent to adding a funded component to the largely unfunded pension system that currently prevails.

Pre-funding future pension liabilities would provide a further means of increasing future output, to the extent that national saving and capital accumulation rise in response. With tax rates smoothed over time, the welfare costs of tax distortions would be minimized.[52] Reducing public debt prior to the retirement of the baby boomers would also provide greater scope for covering higher pension costs out of concurrent government expenditure, given the induced decline in real interest rates and reduction in debt servicing costs.

[51]See Jonathan Gruber and David Wise, "An International Perspective on Policies for an Aging Society," NBER Working Paper No. 8103 (Cambridge, Mass.: National Bureau of Economic Research, January 2001), and references therein.

[52]See Robert Barro, "On the Determination of Public Debt;" and V. V. Chari and Patrick Kehoe, "Optimal Fiscal and Monetary Policy," in *Handbook of Macroeconomics,* ed. by Michael Woodford and John Taylor (New York: North Holland, 1999).

International Dimensions

With public policy discussions on pension reform usually taking a country-by-country perspective, the open economy aspects of aging populations have been relatively neglected.[53] Illustrating the importance of these international dimensions, the projected increase in overall dependency rates (of young and old relative to the 20- to 64-year-old group) in the major industrial economies and other fast-aging countries is partially offset by the fall in dependency rates in countries that, by 2050, will account for nearly half of world GDP (Figure 3.10).[54] In view of the negative effect of rising dependency rates on private and national saving, the financing of public pension obligations in the aging countries will affect the distribution of trade balances and capital flows within the global economy.[55]

Output, Trade, and Capital Flows

In a closed national economy, the growth rate of average per capita consumption across generations would be likely to fall as the dependency ratio increased, driven by the lower pace of output growth. Hence, maintaining the living standards of retirees in an aging society would eventually come at the cost of relatively lower living standards of workers and the young.[56] In an

[53]These multilateral issues have established a foothold in the research literature, however, and have been incorporated into econometric models of the OECD, European Union, and IMF that generate some of the simulations referred to in this chapter. See also Robin Brooks, "Population Aging and Global Capital Flows in a Parallel Universe," IMF Working Paper 00/151 (Washington: International Monetary Fund, 2000); and Credit Suisse First Boston, *Euro Area Weekly*, "Re-centering the Debate on Pensions," (London: CSFB, November 2000).

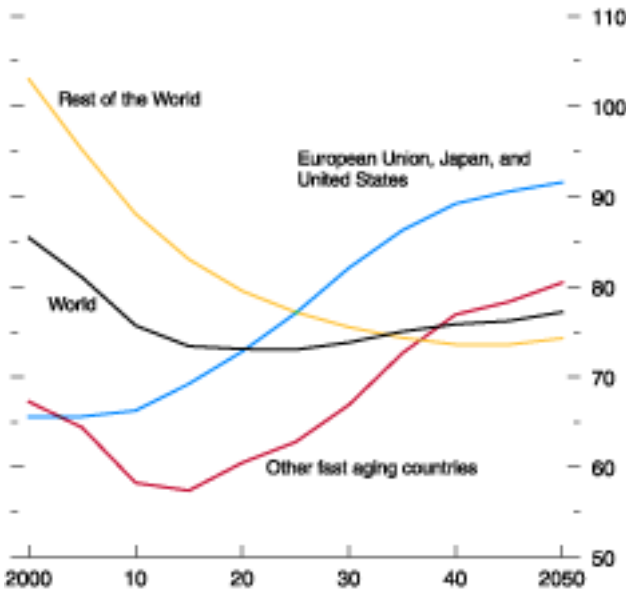
[54]The fall in the total dependency rate in developing countries is due to a relatively slow increase in the old-age dependency rate (compared with the industrial countries) and to a significant decline in the youth dependency rate.

[55]See, for example, Paul Masson, Tamim Bayoumi, and Hossein Samiei, "Saving Behavior in Industrial and Developing Countries," *Staff Studies for the World Economic Outlook,* (Washington: International Monetary Fund, 1995).

[56]If retirees seek to reduce their assets to maintain consumption, these competing claims would be equilibrated in part by rising real interest rates.

Figure 3.10. Total Dependency Ratios[1]
(Percent)

Rising dependency ratios among industrial and other fast aging countries will be partly offset by declining ratios of dependency in the rest of the world.



Source: United States Census Bureau.
[1]Ratio of 0–19 and 65+ age groups to 20–64 age group.

open economy, however, a much smoother path of consumption (and real interest rates) over the life cycle may be feasible for all generations following a fertility boom. This is particularly the case if there is some degree of complementarity between fast- and slow-aging economies regarding saving and investment flows. With international trade in goods, services, and financial assets, the growth rate of national absorption per capita does not need to match the growth rate of output per capita as the dependency ratio falls and then rises. Openness can allow the industrialized countries to continue to provide stable rates of per capita consumption growth even as the share of employment falls. These countries can in fact accumulate foreign assets, through an increase in the current account balance, over the working life of the baby boomers. As this generation retires and the dependency ratio rises, running down these assets, as well as additional foreign borrowing, can then sustain consumption via a decrease in the current account balance.

An approximate assessment of these flows is provided by the OECD study discussed earlier, which projects saving and current account balances. In the reference scenario, the industrial countries will substantially increase their current account positions in the first few decades of the twenty-first century, reaching peak levels of about 2 percent of GDP in both the United States and Japan, and 3 percent in the euro area, in the 2010s (Figure 3.11).

This would allow a large increase in net foreign assets, of around 40 to 50 percent of GDP in the United States, Japan, and the euro area, by the 2030s. Developing countries (both fast and slow aging) will absorb these capital inflows, whether in the form of debt or equity, to sustain their relatively rapid investment growth.

The situation will then reverse. As the population ages and output growth slows, industrial countries will progressively sustain consumption by increasing imports of goods and services. Current accounts will rapidly turn into deficits for several decades, reaching average levels of 3 to 4 percent of GDP. Such imbalances will not

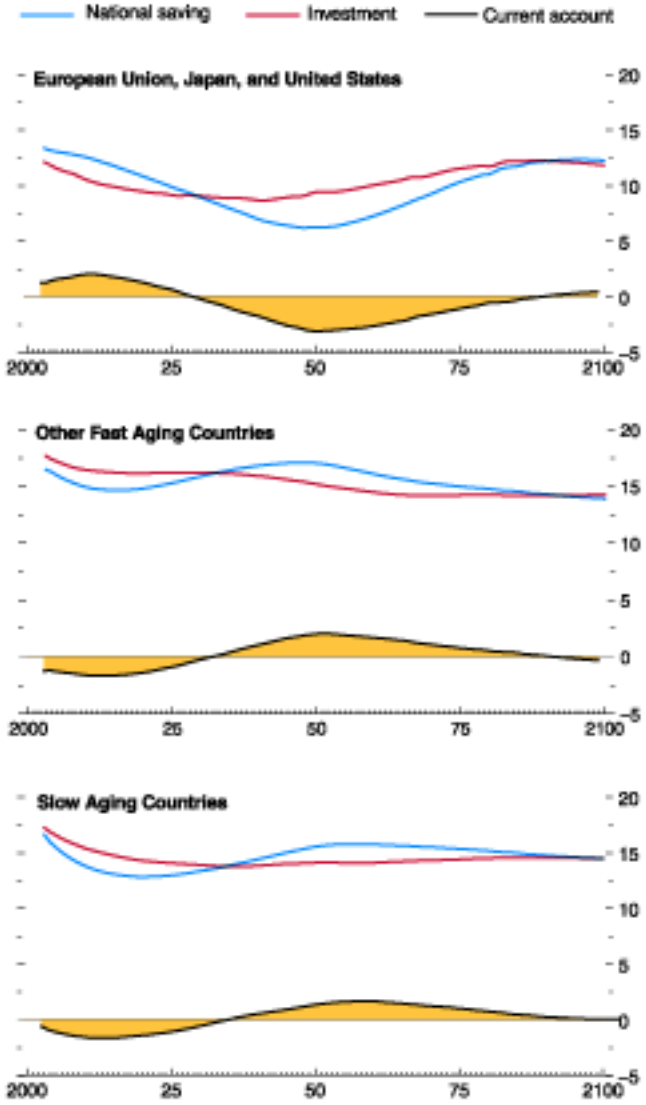
only exhaust the foreign assets accumulated earlier in the century but will also induce industrial countries to borrow heavily, creating net foreign liabilities of around 50 percent of GDP by the third quarter of the century. Developing countries will be able to sustain saving and share their production with industrial countries thanks to a slower aging pattern as well as higher output growth and (by then) larger economic size: their combined current account surpluses would barely reach 2 percent of GDP.

The extent of these projected capital movements between industrial and developing countries would be unprecedented in recent times. In the last 30 years, net foreign asset positions of industrial countries declined from about plus 4 percent of their combined GDP in 1970 to approximately minus 4 percent in 1998, largely driven by the increase in U.S. foreign liabilities.[57] Capital flows of the projected size were, however, seen during the gold standard, indicating that such sustained flows could again be accommodated within the international financial system.[58]

In the context of such an increase in international financial integration, a central issue concerns the quality of capital markets and policies in developing countries. The large capital flows projected above would be warranted on the basis of an efficient global allocation of resources, given the higher productivity in developing countries and the outlined demographic trends. However, the risks associated with poorer institutional frameworks and higher economic and pol-

Figure 3.11. Saving, Investment, and Current Account Balances in the Reference Scenario
(Percent of GDP)

A buildup of foreign assets by the industrial countries over the next 20–30 years would help both to sustain consumption in these countries as their populations age and to finance investment in the rest of the world.



Source: Dave Turner, Claude Giorno, Alain de Serres, Ann Vourc'h and Pete Richardson, "The Macroeconomic Implications of Aging in a Global Context," OECD Economics Department Working Paper No. 193 (Paris: OECD, 1998).

[57]Individual countries, however, experienced larger changes in net foreign asset positions. Extreme cases include Ireland, whose net foreign asset position has increased from –80 percent of GDP in 1970 to approximate balance in 1998, and Switzerland, whose position declined from about 70 percent in 1970 to about 20 percent in 1980. For estimates of historical data of stocks of foreign assets and liabilities, see Philip Lane and Gian Maria Milesi-Ferretti, "The External Wealth of Nations," *Journal of International Economics* (forthcoming).

[58]See Charles Bean, "The External Constraint in the U.K.," in *External Constraints on Macroeconomic Policy: The European Experience*, ed. by George Alogoskoufis, Lucas Papademos, and Richard Portes (Cambridge, England: Cambridge University Press, 1991).

Table 3.1. Net Migration Flows to Major Industrial Economies in 2000 to 2050
(Average Annual Number: thousands)

	Scenario I Constant Total Population	Scenario II Constant 15–65 Age Group	Scenario III Constant Dependency Ratio[1]	Scenario IV Average Net Migration 1990–1998
United States	128	359	11,851	1,015
Japan	343	647	10,471	–3
European Union	949	1,588	13,480	857
Germany	344	487	3,630	404
France	29	109	1,792	59
Italy	251	372	2,268	114
United Kingdom	53	125	1,194	73

Source: United Nations Population Division
[1]65+ age group relative to 15–64 group.

icy uncertainty in developing economies may discourage flows toward these countries and even induce, at times, sudden and massive reversal. Further development of capital markets and institutions in developing countries would be required in order to improve protection of property rights, strengthen supervisory and regulatory regimes, enhance transparency in financial intermediation, and ensure that financial flows are properly channeled to productive investment activities. Although sound macroeconomic policies would raise the confidence of international investors, vigilance and the assistance of the international financial institutions would also play a role in preventing possible financial crises.

International Migration

Migration of labor provides a potential mechanism for reducing the level of capital flows that would be needed to smooth consumption over demographic cycles in the industrialized economies. In particular, migration from countries with younger populations to those with aging populations would help to reduce dependency ratios and increase output and consumption in faster-aging countries. Immigration should slow the growth of labor costs in the most industrialized countries as the labor pool shrinks. Global output could also increase, to the extent that labor productivity of immigrants is higher in the recipient country than in the home country. A source of concern may be the loss of human capital (or "brain drain") from developing countries, although increased labor mobility might also facilitate the return of skilled workers to their home countries.

Hence, governments may have an incentive to relax restrictions on immigration as their populations age.[59] By increasing the tax base, immigration would help ease fiscal constraints on making public pension payments to retirees. In contrast, borrowing to finance the consumption of an aging population may be costly, as this could compete with high demand for investment in the middle- and low-income countries with rapid technological progress and development.

Increased migration would need to be part of a broader package of reform measures, however, rather than the principal means by which aging populations are supported. This point is illustrated by recent United Nations' projections indicating the level of migration that would be required over the next half century to either maintain a constant total population (Scenario I in Table 3.1), stabilize the working age population (Scenario II), or keep a constant elderly dependency ratio (Scenario III). For the United States and the European Union, the migration required to stabilize the population is not out of line with inflows during the 1990s (shown in column IV of Table 3.1); in the United States, re-

[59]The negative impact of immigration on wages could strengthen the lobby against relaxing immigration restrictions. The tightening of restrictions on immigration, however, are most often associated with periods of falling real wages rather with periods of rising real wages.

cent immigration flows in fact exceed the level needed to maintain a constant working age population. But the migration inflows needed to stabilize dependency ratios—in the range of 10 to 13 million people a year in the United States, Japan, and the European Union—are clearly far above recent levels, and probably higher than would be politically and economically feasible in the foreseeable future.

Globalization provides an important route through which future pension costs can be absorbed. As with the essential domestic reforms discussed earlier, the size of adjustment in any one dimension—accumulation and decumulation of net foreign assets, the associated trade flows, and migration—implies that all of these channels need to be involved to some extent in resolving the pension problem.