Long-Term Tendencies in Budget Deficits and Debt

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Until recent decades, government fiscal positions were rarely in deficit, except in exceptional circumstances, such as wars or severe economic downturns. Debt that was accumulated in those periods was usually repaid promptly afterward, and budget surpluses were run in order to do so. This situation changed in most industrial countries at some point in the postwar period—a period also characterized by increasing shares of government spending in GDP. To a large extent, these increases in spending have resulted from massive expansions in the "welfare state," notably in government health care expenditures, public pensions, and to a lesser extent, income support for the poor. Though the share of government revenues also rose strongly in this period, increases were not sufficient to balance budgets, and industrial countries have run persistent deficits over the past two decades or so. Most industrial countries have experienced substantial increases in debt-to-GDP ratios in recent years.

The reasons for the increase in government spending unmatched by revenue increases are complex, and a number of hypotheses have been put forward. Clearly, there was a change in view concerning the role of the state, no doubt partly the result of the unemployment and hardship suffered during the Great Depression, and facilitated by the extension of government powers needed to fight the Second World War. The Beveridge Report, prepared in Britain during the war, was representative of that change in views, and influenced the commitment in the United Kingdom and elsewhere to limit the

extent of unemployment, to alleviate poverty, and to provide social services to the general population. In many countries, provision of extensive public health care was introduced after the war (though not in the United States, or until the late 1960s, in Canada). Government services seem to be a superior good, so that rising prosperity levels in the 1950s and 1960s led to increasing demands for government spending in order to spread the advantages of growth to the less fortunate—the poor, the sick, and the unemployed.

The prevailing view that government deficits were supposed to be exceptional occurrences was also changing. Keynes' *General Theory* opened the door for the Keynesian practitioners in government to recommend "functional finance," that is, the use of deficit spending to iron out cyclical fluctuations in the economy. However, sizable and persistent deficit spending only started in the 1970s, when the influence of Keynesianism was waning. Part of the explanation is that the early 1970s saw a breakdown of the Bretton Woods system of infrequently adjusted exchange rate pegs, which had exerted some discipline on fiscal policies. The deficits may also to some extent be the result of a decline from the very high levels of postwar growth in the 1950s and 1960s. Social programs that seemed to be affordable in the high-growth years were seen not to be so after productivity growth slowed in the early- to mid-1970s. Also, the rise of inflation during the 1970s, which was not fully anticipated, helped to erode ratios of public debt to national income and tended to push up revenues under progressive tax systems, thereby offsetting some of the fiscal deterioration that would otherwise have occurred. The reduction of inflation in the 1980s and 1990s and the general increase in real government borrowing costs reversed these effects and unmasked the true extent of the fiscal deterioration. Most recently, as public awareness of the deficit problem has grown, governments in several industrial countries have begun to move to rein in public deficits. However, inertia in the political process has meant that the deficit problem has yet to be addressed satisfactorily in most countries.

Indeed, it is clear that current trends are unsustainable. Despite attempts at deficit reduction, and government revenue levels that in

many countries approach or exceed 50 percent of output, debt-to-GDP ratios continue to rise. Moreover, there are worrisome trends that will tend to widen deficits further if left unchecked, rather than reduce them. First, health care costs are growing faster than output in most countries, contributing to increased government spending everywhere, despite differences in the extent of public health care offered in various countries. Second, public pension systems have typically not accumulated sufficient assets to provide existing benefit levels to the baby-boom generation when it retires, without contribution rate increases. Increases in the proportion of elderly in the population will put further upward pressure on health care costs. It is clear that major measures are needed to rein in the growth of government spending on health care and on pension benefits, since the high levels of taxation already provide disincentives to employment in a number of industrial countries.

To date, most developing countries have not provided the level of social services that prevail in industrial countries. This is consistent with the notion of government services as a superior good. It is also true that underdeveloped tax systems have not permitted these governments to increase government spending to industrial country levels—at least not without running into financing constraints on deficits. It is nonetheless true that developing countries, like industrial countries, are now typically running sizable government deficits as ratios to GDP.

The challenge for developing countries as they become wealthier will be to respond to rising demands for various social benefits while avoiding the excessive growth of government spending that now afflicts industrial countries. This will be especially important since aging populations will in the future put upward pressures on health care and pension expenditures—although the average age of developing country populations will still be significantly lower than in industrial countries until well into the next century. It is to be hoped that the developing countries will learn from the mistakes of the latter, and will utilize alternative means for meeting the social needs of aging populations without the heavy reliance on pay-as-you-go systems of social expenditure that have generated severe budgetary

problems in most of the industrial countries. It is important that developing countries get an early start on mechanisms for greater funding of future pension benefits both as a means to boost saving to finance necessary public and private investment and in order to avoid the political difficulties that generally accompany efforts to reform pay-as-you-go systems once they have become entrenched.

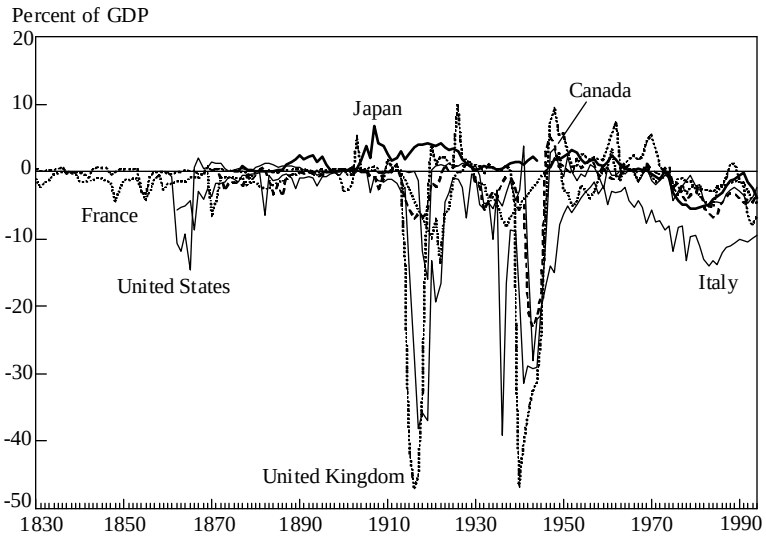
A number of studies have detailed the radical change in fiscal policies since the war, for instance the various chapters of Boskin, Flemming and Gorini, eds. (1987); Buchanan, Rowley, and Tollison, eds. (1987); Arrow and Boskin, eds. (1988); and Baltassari, Mundell, and McCallum, eds. (1993); among many others.[1] The present paper attempts to present a broad survey of the longer-term developments for a few of the larger advanced countries, and more detailed data for both industrial and developing countries over the past few decades, tracing the sources of the expenditure increases and assessing the magnitude of the deficit problem.

The plan of the paper is as follows. The next section presents long-term data for the major industrial countries, highlighting the break in behavior as concerns deficits and debt. The third section looks at the components of government expenditure, focusing on social spending and the causes of its increase in recent decades. The fourth section considers the effects of inflation and growth on debt-to-GDP ratios. The fifth section presents evidence that current trends in industrial countries are not sustainable, since public debt-to-GDP ratios are rising and health care and pension plan deficits are forecast to widen further under current policies. The sixth section discusses what needs to be done to contain the deficits, and surveys recent initiatives in the major industrial countries. The seventh section discusses developments in developing countries and considers the lessons for them suggested by the experience of industrial countries, while the eighth section concludes.

Long-term trends for selected industrial countries

The norm of fiscal rectitude that prevailed until the middle of this century in most countries demanded that government budgets be

Chart 1
G-7 Countries Excluding Germany: Central Government Fiscal Position, 1830-1994

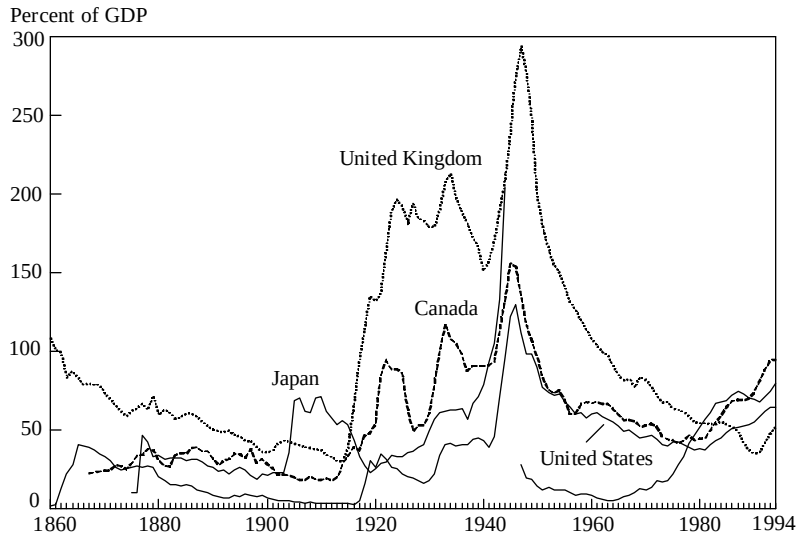


Sources: U.S. Department of Commerce (1975), Mitchell (1980), Mitchell (1983), Japan Statistical Association (1987), and IMF, *World Economic Outlook* database. Fiscal position was calculated as revenue minus expenditure.

balanced except in exceptional circumstances. And, for practical purposes, they were balanced, except mainly in the two World Wars and the Great Depression.[2] Indeed, public opinion was strongly in favor of avoiding deficits; Franklin Roosevelt was elected in 1932 after a campaign that attacked the Hoover Administration for reckless spending, since it had run deficits for three years in a row.[3]

Chart 1 presents central government deficit data for the G-7 countries (except Germany). In the nineteenth century, fiscal positions fluctuated narrowly around zero in most years. The war periods can be clearly identified: the widening U.S. deficits during the Civil War in the early 1860s, the effects of the 1870-71 Franco-Prussian War on France, and the generalized effects of the 1914-18 and 1939-45 wars (Japanese data are missing for some years). Since the Second World War, there is a discernible downward trend in fiscal

Chart 2
United States, Japan, United Kingdom, and Canada:
Central Government Gross Debt, 1860-1994



Sources: Urquhart and Buckley (1965), U.S. Department of Commerce (1975), Mitchell (1988), Japan Statistical Association (1987), and *OECD Economic Outlook* database.

positions—especially accentuated in Italy, and moderated in Japan (U.K. data show greater fluctuation, with surpluses as well as deficits).

The result of the prevailing policy of fiscal rectitude was that the wartime accumulation of government debt was run down in the subsequent years. Chart 2 gives government debt-to-GDP ratios for some of the major countries. In the United States, public debt, which had been negligible before the Civil War, rose to 40 percent of GDP in 1865; it declined nearly continuously in subsequent decades, and by 1914 it was again at negligible levels. The debt ratio rose once again to 40 percent as a result of the First World War, had been reduced to 20 percent in 1929, then rose sharply as a result of the Great Depression and the Second World War, reaching a peak of 120 percent of GDP in 1945. However, from 1945 to 1980, the debt ratio declined steadily, to some 38 percent of GDP in the latter year. Since

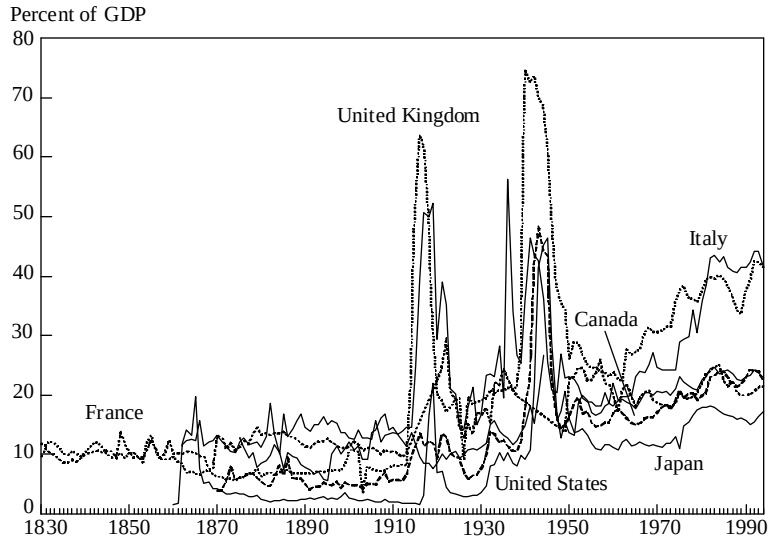
1980, the debt ratio has however risen continuously, the first experience of a peacetime buildup that did not correspond to a severe contraction of output or other exceptional circumstances.

Other countries have had similar experiences. Japanese debt accumulation during the 1905 war with Russia and subsequent arms buildup was reversed during the next decade. The very high level of debt reached during the Second World War was partially abrogated, and the remaining stock was virtually eliminated by 1960. There followed a period of steady buildup, which like the United States, was the first extended period of government debt accumulation that could not be linked to wartime or depression. Canada and the United Kingdom also exhibit the same pattern of buildup in wartime and during the initial years of the Great Depression, but these countries had succeeded in lowering their debt-to-GDP ratios by the start of World War II. The United Kingdom had the largest increase in debt ratio during the war years, and also the longest period of decline, with a rising debt ratio only a feature of the last few years. Canada has had increasing debt ratios since the mid-1970s, from 40 percent of GDP then to almost 100 percent at present.

The experience of wartime debt accumulation can be rationalized on the basis of tax smoothing arguments (Barro, 1979). Balancing the budget in the face of the sharp increase in government spending in wartime (Chart 3) would require very high tax rates, and these tax rates would discourage labor supply just at the time that the country most needed the effort of its citizens to produce armaments and other goods to support the war effort. Indeed, government revenues as a proportion of GDP have been much less variable than expenditure ratios (Chart 4). The United Kingdom stands out as a country with much larger revenue increases in the Second World War, but also a much higher ratio of government spending to GDP.

It is also clear that since 1930 there have been trend increases in the shares of both expenditures and revenues in output—leaving aside the war years (Charts 3 and 4). During the previous 100 years, these countries' central government spending ratios rarely exceeded 10 percent to 15 percent of GDP. In the United States, federal

Chart 3
G-7 Countries Excluding Germany: Central Government Expenditure, 1830-1994



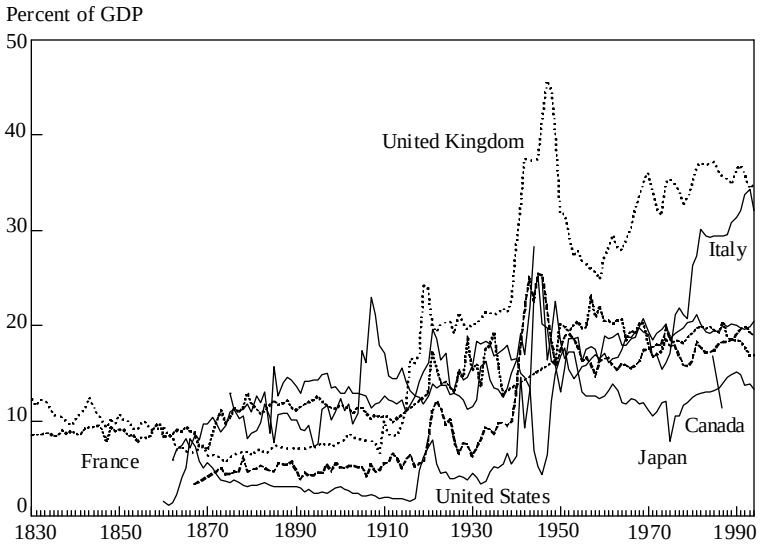
Sources: See Chart 1

spending was even under 5 percent of GDP for the entire period 1868-1914. These spending ratios rose somewhat between the wars, but then showed almost continuous upward trends from 1950 onward—most noticeably in the United Kingdom and Italy, where they rose to over 40 percent of GDP. For the other countries, central government spending is now about 20 percent of GDP, though general government spending is a considerably higher fraction of GDP, especially for those countries with federal systems.

The sources of increases in government spending and deficits

More detailed data allow a better understanding both of the extent of government involvement in the economy and the sources of the spending increases. Table 1 gives data for a wide definition of government, namely general government, which includes central as well as lower levels of government (but excludes state-owned enterprises, which are important in some countries). The extent of

Chart 4
G-7 Countries Excluding Germany: Central Government Revenue, 1830-1994



Sources: See Chart 1

the increase in government spending as a ratio to GDP in the 1975-93 period—less than two decades—is remarkable. For all countries except the United Kingdom, the share of government spending rose, and in Canada, France, Italy, and Japan, it rose by 8 to 11 percentage points of GDP. Four of the countries (Germany, France, Italy, and Canada) had spending ratios in 1993 that exceeded 50 percent of GDP, while the figure for the United Kingdom was about 45 percent. Japan and the United States have ratios of about 34 percent.

Over the 1975-93 period, increases in expenditure came mainly in social security. Social security spending rose in all countries as ratios to GDP, by amounts ranging from 1.5 percentage points (United States) to 6 percentage points (France). The average increase in this ratio[4] was about 3.5 percentage points of GDP. In contrast, the other categories of spending did not show large changes as ratios to GDP, though typically, defense spending and government investment declined and interest expenditure rose.

Table 1
Major Industrial Countries:
General Government Expenditures by Category, 1975-93
(In percent of GDP)

		Expenditures					
Country	Year	Total	Social Security	Unemployment Benefits	Defense	Interest	Investment[1]
United States	1975	33.5	8.4	1.1	5.7	2.4	2.9
	1985	33.2	8.9	0.4	6.4	4.9	2.2
	1993	34.5	10.1	0.5	4.8	4.4	2.2
Japan	1975	26.8	5.9	0.1	...	1.2	9.1
	1985	31.6	9.5	0.4	0.9	4.4	6.7
	1993	34.3	11.1	0.3	0.9	3.8	8.6
Germany[2]	1976	48.8	18.9	1.2	...	1.6	3.5
	1985	48.1	18.8	1.3	...	3.0	2.3
	1993	50.4	21.3	2.0	1.7	3.3	2.7
France	1975	44.2	17.4	0.4	3.3	1.2	4.5
	1985	52.5	22.1	1.0	3.1	2.9	3.4
	1993	55.0	23.6	1.6	2.7	3.7	3.9
Italy	1977	38.6	...	...	...	...	3.6
	1985	51.4	...	0.7	2.1	8.0	3.0
	1993	57.2	...	0.5	1.5	12.0	3.2
United Kingdom	1975	45.2	8.8	0.4	4.8	3.9	8.4
	1985	44.6	11.6	1.9	5.0	4.9	3.6
	1993	44.1	12.2	2.0	3.8	2.9	2.9
Canada	1975	39.9	3.1	1.8	1.6	3.8	3.7
	1985	46.8	4.2	2.1	2.0	8.4	2.7
	1993	50.8	4.8	2.5	1.7	9.2	2.2

Source: *World Economic Outlook* data base.

[1]Public investment in the national accounts.

[2]Data refer to western Germany through 1989, united Germany thereafter.

A more detailed look at data for the United States shows that the large increase in the share of government spending in output since 1902 can be linked to increases in the shares of the social security system ("insurance trust expenditure") in total government spending and, to a lesser extent, general expenditure on public welfare (Table 2). Indeed, "insurance trust" spending rose from 0 to 22 percent of the federal, state, and local budgets over that period, while public welfare spending rose from 2 percent of total government spending to 8 percent.

It is important to try to understand the causes of this generalized increase in government spending, and in particular social spending. Part of the explanation is that there was a change in attitude concerning the role of government in the economy and the need to balance budgets. Rowley (1987a), for instance, has argued the generation that came of age after the First World War turned its back on Victorian values, which included budget discipline and reliance on the gold standard. The social cost of widespread unemployment during the Great Depression led many to look for greater government intervention in the form of stimulative fiscal policies to maintain employment and transfer payments to alleviate the distress of those who were poor or unemployed. It could also be that the extensive government intervention during the Second World War, including care for the welfare of millions of men and women in the armed forces, opened the door to large-scale government social programs after the war.

John Maynard Keynes formalized the argument in favor of increased government spending to supplement insufficient aggregate demand in the *General Theory of Employment, Interest and Money*. Keynes' influence led his disciples to advocate increased use of government spending for cyclical purposes. For instance, Abba Lerner argued that instead of "sound finance" (balanced budgets), the government should practice "functional finance," adjusting spending and taxation in order to maintain output at its full employment level. In principle, such a policy need not produce government deficits on average, or even a trend increase in government spending, just more (countercyclical) fluctuation in spending and compensating

Table 2
United States: Federal, State, and Local Expenditure, by Function, Selected Years, 1902-92
(In billions of dollars and in percent of total)

Year	Total	General Expenditure					Insurance Trust Expenditure[1]	Other [2]
		Defense [3]	Education	Public Welfare	Hospitals and Health	Interest [4]		
1902	1.66	0.17	0.26	0.04	0.06	0.01	(—)	1.12
		(10%)	(16%)	(2%)	(4%)	(1%)	(—)	(67%)
1913	3.22	0.25	0.58	0.06	0.11	0.17	0.01	2.04
		(8%)	(18%)	(2%)	(3%)	(5%)	(—)	(63%)
1922	9.30	0.88	1.71	0.13	0.25	1.37	0.08	5.00
		(9%)	(18%)	(1%)	(3%)	(15%)	(1%)	(54%)
1932	12.44	0.72	2.33	0.45	0.58	1.32	0.17	6.87
		(6%)	(19%)	(4%)	(5%)	(11%)	(1%)	(55%)
1942	45.58	26.56	2.70	1.29	0.72	1.59	0.99	11.7
		(58%)	(6%)	(3%)	(2%)	(3%)	(2%)	(26%)
1952	99.85	48.19	9.60	2.83	3.20	4.81	5.49	25.7
		(48%)	(10%)	(3%)	(3%)	(5%)	(5%)	(26%)
1962	176.2	55.2	22.8	5.15	6.13	9.17	21.6	56.2
		(31%)	(13%)	(3%)	(3%)	(5%)	(12%)	(32%)
1970	333.0	84.3	55.8	17.5	13.6	18.4	48.5	94.9
		(25%)	(17%)	(5%)	(4%)	(6%)	(15%)	(28%)
1975	560.1	93.9	95.0	39.4	24.9	33.8	109.2	163.9
		(17%)	(17%)	(7%)	(4%)	(6%)	(19%)	(29%)
1980	958.7	149.5	143.8	74.6	43.3	76.0	199.4	272.1
		(16%)	(15%)	(8%)	(5%)	(8%)	(21%)	(28%)
1984	1,428.1	248.0	188.6	88.4	59.3	137.9	304.7	401.2
		(17%)	(13%)	(6%)	(4%)	(10%)	(21%)	(28%)
1992	2,487.9	314.5	353.6	202.0	118.8	255.0	545.0	699.0
		(13%)	(14%)	(8%)	(5%)	(10%)	(22%)	(28%)

Source: U.S. Department of Commerce (1975, 1987, 1994).

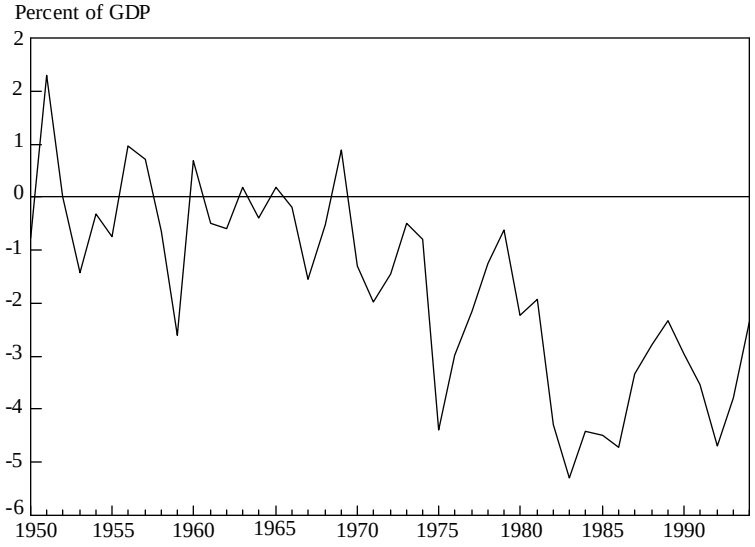
[1]Including employment retirement, unemployment compensation, old age and survivor's insurance, and other.

[2]Other general expenditure plus "utility and liquor stores."

[3]Plus international relations.

[4]On general debt.

Chart 5
United States: Federal Deficit, 1950-1994



Sources: See Chart 1

movements in deficits. In practice, however, Rowley (1987b) argues that the involvement in government of interventionists necessarily increased the size of government. It is true nonetheless that the tendency to persistently large deficits did not occur in the heyday of Keynesian influence (in the United States, this was arguably the Kennedy Administration of 1961-63), but emerged after 1970, when Keynesian ideas were clearly no longer as fashionable and when Democratic presidents (arguably more influenced by Keynesian views) had been replaced by Republicans (Chart 5). This leads Anderson (1987) to argue that the Keynesian revolution has probably contributed to large federal deficits but did not cause them; instead, he points to the growth in uncontrollable transfer spending to individuals. Another factor that changed in the early 1970s was the breakdown of an international monetary system based on infrequently changed pegged exchange rates. Laidler (1987) argues that the Bretton Woods system imposed budget discipline on the non-U.S. countries, so that its abandonment weakened the resistance to

deficits. In particular, he points to the "stop-go cycles" of the United Kingdom before 1971, when rising imports associated with excess demand led to budgetary restriction in order to limit fiscal and balance-of-payments deficits; this constraint disappeared—or at least was perceived not to be as important—when Britain moved to a flexible exchange rate.

Another intellectual contribution to the change in attitude to government spending for social transfers was the Beveridge Report, published in 1942 in the United Kingdom. This work advocated an extensive reform of the provision of social services and influenced the creation of the "welfare state" in that country. However, it is farfetched to suppose that the ideas in the Beveridge Report were the reason that other countries also brought in far-reaching extensions to their social security programs. Clearly, there was a similar shift in what the public expected the government to provide in the way of services, and this shift was probably related to the generalized experience of the Great Depression and the Second World War. The attempt to extend into the postwar period the solidarity that had united employers and workers during the war led in continental Europe to the creation of state-financed social security systems that were administered by the "social partners" (that is, the trade unions and employers' federations).

However, and as documented above in Table 1, there have been large *recent* increases in social security spending, that is, since 1975. Therefore, other explanations are needed for its continued increase. It seems that social spending needs to be considered a superior good: with rising income levels, the demand for social services increases more than proportionally with income. Richer countries consider that they can afford to extend to the general population generous health care and pension benefits, and to provide a social safety net for those who are relatively poor or unemployed.

Another aspect of the growth in social spending is that benefits became "entitlements" or *acquis sociaux*, and their administration became increasingly divorced from the normal budgetary process.[5] It is clear that in a number of countries the public attitude in

favor of social transfers hardened to the extent that it was very difficult to resist maintaining, and even increasing, social spending benefiting various portions of the population. In some countries, notably the United States and the United Kingdom, benefits for the poor and the disadvantaged have enjoyed less general political popularity and protection, and these benefits have been scaled back in some instances. However, widely distributed public benefits, especially pensions and publicly supported health care, have enjoyed strong political support virtually everywhere and not only among the immediate beneficiaries of these programs. In the case of benefits for the aged, the sense of "entitlement" has been fostered by the idea that benefits received during retirement have been paid for by contributions to social insurance programs during an individual's working years. The fact that, for most presently retired individuals, the value of benefits is several times the fair value of contributions on an actuarial basis does not seem to have much deterred this sense of entitlement. In any event, once a general sense of entitlement to receive social benefits has become established, it has proved to be very difficult politically to scale back these benefits.

Population, productivity, and inflation

The sense of "entitlement" to many social benefit programs has also interacted with a variety of miscalculations in a manner that has contributed significantly to the growth of public spending and of public deficits and debt ratios for the industrial countries in the postwar era. There has been a ratcheting-up process whereby miscalculations have led to benefits that turned out to be significantly more expensive than originally envisaged but proved difficult to restrain because of an established sense of entitlement. The main elements in these miscalculations have been the increase in life spans and decline in birthrates, the general slowdown in productivity growth, the rapid rise in real health care costs, increasing structural unemployment, and the general upsurge and subsequent slowdown of inflation.

In all industrial countries, life expectancy has risen significantly in the postwar era and the age of retirement has generally declined.

The combined impact of these changes has been to increase very substantially the cost of public benefits for the aged. To an important extent, these increases in costs were not anticipated, and could not have been fully anticipated, at the time when the basic parameters of public benefit programs for the aged were established and the sense of entitlement to these benefits was developed. In a number of countries, particularly in Europe, this problem was exacerbated by increasing incentives for early retirement that were undertaken partly in the mistaken belief that this would expand job opportunities for younger workers and thereby diminish unemployment.[6]

The industrial countries also generally experienced an upsurge and subsequent slowdown in birthrates in the decades following the Second World War, although the timing differed somewhat across countries. Initially, higher birthrates meant increased pressures on public spending, particularly on education, to support a larger dependent population of young people. By the 1970s, however, the actual and prospective entry of many new workers into the labor force, together with the prospect of a relatively smaller number of retired workers reflecting the lower birthrates of the interwar period, helped to make relatively generous public pension systems and other public benefits for the aged appear more affordable. More recently (as discussed further below), it has become apparent that the decline in birthrates after the postwar baby boom will imply large increases in the relative size of the dependent aged population in industrial countries in the first part of the next century.

Misperceptions about the longer-term costs of systems of public benefits for the aged were probably also abetted by the financing of many of these systems on a pure pay-as-you-go basis. For budgetary purposes, these systems were viewed as in financial balance provided that current benefit payments were matched by current social charges (mainly in the form of payroll taxes). The longer-term financial implications of continuing commitments to provide benefits were not made transparent, and the public was not encouraged to think about these implications. Even in systems that were at least partially funded, such as the U.S. social security system, the level of funding tended to fall behind changes in demographic trends and

other developments. In 1983, it was necessary to "rescue" the U.S. social security trust fund from the prospect of near-term insolvency by legislating substantial increases in payroll taxes and a delayed and gradual increase in the retirement age for full benefits.[7] It now appears that this "rescue" was not enough and that further adjustments in revenues and/or benefits will be needed to keep the system "solvent" after about 2030.

Another significant source of miscalculation that has contributed to the unexpected rise in entitlement spending has clearly been the substantial increase in the cost and quantity of publicly supported health care. As documented in Table 3, indexes of both the volume and cost of health care have risen significantly for most industrial countries since 1980. For most of these countries, publicly provided and publicly supported health care predominates for most segments of the population. In these countries, budgetary pressures from rising health care costs have generally been resisted by efforts to limit the growth in the supply of health care, but the outcome has still been rapid increases in public health care expenditures. In the United States, the situation has been different, with public support for health care limited primarily to the aged and to the poor. Nevertheless, with little effective market discipline to contain the rising costs of and the rising demands for health care, both private and public expenditures for health care have risen rapidly relative to GDP. These massive increases in the budgetary costs of publicly supported health care, which were not foreseen when the major program for health care for the aged was established in 1965, have been the most important factor contributing to the growth of federal spending in recent years.

On the other hand, demands for some categories of public spending have generally declined over the postwar era. Spending on public education, which rose relative to GDP as the baby-boom generation passed through school, has declined somewhat in recent years. Spending on national defense has also been in general decline as a share of GDP. Specifically, for the United States, defense spending ran at about 10 percent of GDP in the 1950s and returned to about this level at the height of the Vietnam War; it then fell slightly below

Table 3
Selected Industrial Countries: Volume and Price of Household Consumption of Health Care Relative to GDP
(Increase, 1980-92, in percent)

	Volume Relative to Real GDP	Price Relative to GDP Deflator
Australia	22	—
Austria	3	25
Belgium	10	10
Canada	5	28
Denmark	12	5
Finland	13	32
France	60	-18
Germany	13	4
Greece	—	18
Ireland	17	46
Italy	39	10
Japan	—	8
Netherlands	27	-17
Spain	21	-3
Sweden	36	15
Switzerland	16	6
United Kingdom	54	15
United States	11	38

Source: OECD National Accounts.

5 percent of GDP by 1980, rose to about 6.5 percent during the Reagan buildup, and has fallen to about 4 percent of GDP with the end of the Cold War. It has sometimes been argued that the decline in the share of defense spending during the 1970s facilitated the rise in social spending by making room for such spending without raising taxes. This argument, however, has limited relevance outside of the United States where the reduction in the share of defense spending was comparatively smaller.

A factor of more general importance for the industrial countries (and somewhat less so for the United States) was the significant

slowdown in economic growth after the early 1970s. As indicated in Table 4, during the 1950s and 1960s, the industrial countries generally enjoyed a period of rapid real economic growth, especially in Japan and continental Europe. Projections based on this experience supported the conclusion that relatively generous public pension schemes could be supported with reasonable contribution rates from the employed population. Since the early 1970s, however, the industrial countries have generally experienced a significant slowdown in real growth rates; and this has implied that substantially higher contribution rates would be required to support established entitlements concerning public pensions.[8] More generally, it has meant that a wide variety of expectations concerning the real growth of both private incomes and public services have had to confront the reality of slower growth of real resources to meet these expectations. The growth of public sector deficits may partly reflect the failure of the political system to successfully resolve this confrontation.

Another development that has contributed significantly to the rise of social welfare spending since the early 1970s is the large and persistent increase in structural unemployment that has occurred in most industrial countries (with the notable exceptions of Japan and the United States). In particular, during the 1950s and 1960s, unemployment rates in the countries of Western Europe generally ran in the range of 2 percent to 3 percent, which was marginally above the average unemployment rate in Japan and distinctly below the average unemployment rate of about 5 percent in the United States. The generally low and relatively stable inflation rates of this period indicate that these average unemployment rates were close to the "natural rates" of unemployment for these countries. During the past two decades, the average unemployment rate has remained very low in Japan. In the United States, deep recessions in the mid-1970s and the early 1980s helped push the average unemployment rate up to 6.5 percent, while most estimates of the natural rate indicate an increase to about 6 percent. In most of Western Europe and in Canada and Australia, the increase in unemployment rates has been much greater, and estimates of natural rates of unemployment are generally very high, in the range of 8 percent to 10 percent.

Table 4
Five Major Industrial Countries: Rates of Inflation, Real Interest Rates, and Real Growth Rates, 1955-94
(Averages in percent per annum)

	1955-59	1960-69	1970-79	1980-89	1990-94
			Inflation (GDP Deflator)		
United States	2.9	2.7	7.0	5.2	3.1
Japan	3.0	5.7	8.1	1.9	1.3
Germany	2.9	4.1	5.5	3.0	3.5
France	5.0	4.2	9.4	7.1	2.5
United Kingdom	3.9	3.6	12.9	7.5	4.5
			Real GDP Growth		
United States	2.9	4.1	2.8	2.5	2.0
Japan	8.0	10.5	5.2	4.0	2.1
Germany	6.6	4.8	3.1	1.8	2.5
France	5.5	5.7	3.7	2.3	1.2
United Kingdom	2.3	3.2	2.4	2.4	0.8
			Real Long-term Interest Rate [1]		
United States	1.4	0.8	-0.2	6.7	4.2
Japan	...	-0.3 [2]	1.0	5.0	3.9
Germany	2.0 [3]	2.3	3.3	4.6	4.2
France	0.8	0.4	-1.7	7.1	5.9
United Kingdom	2.4	1.2	-2.0	5.7	4.7

[1] Nominal rate minus realized inflation rate over following 5 years; for 1990-94, minus actual inflation.
[2] 1966-69.
[3] 1956-59.

The causes of the increase in structural unemployment countries are undoubtedly complex and not fully understood. Nevertheless, it is clear that important contributing factors in many countries have been relatively generous benefits for unemployed workers that diminish incentives for work, high levels of minimum wages and taxes or social charges that make it expensive to employ less-skilled workers, and a wide variety of social policies and labor practices that impair the efficient functioning of labor markets. Rising levels of structural unemployment probably partly reflect a general worsening of policies in these areas since earlier in the postwar era. They probably also reflect a gradual adaptation of habits and social norms to existing policies that was not anticipated when these policies were established. For example, relatively generous unemployment benefits may make sense and involve little cost when the work ethic is strong and the social stigma of long-time unemployment is intense, but the adverse effects of generous benefits may grow as individual habits adjust to the relevant economic incentives and as social attitudes adapt to a generally higher level of unemployment. In any event, rising levels of structural unemployment have had adverse budgetary effects—both because of the direct costs of benefit programs for the unemployed and because of lost tax revenue—that would not have been anticipated on the basis of the experience of the 1950s and 1960s.

A final general economic factor that has influenced the development and distorted perceptions of government deficits and debt ratios has been the behavior of inflation during the postwar era. The past five decades have been an era of generally rising prices, in contrast to the long-term stability of the price level that prevailed under the metallic monetary standards during the preceding two centuries. Indeed, in the United States, which has experienced one of the smallest increases in consumer prices among industrial countries during the past fifty years, the general price level has nevertheless risen by about 700 percent.[9]

One of the consequences of postwar inflation has undoubtedly been to reduce the real value of government indebtedness, although this effect was weakened and then partly reversed as expectations

of inflation caught up with and then somewhat exceeded actual inflation. The experience of the United States is illustrative of qualitative features of these phenomena more generally for the industrial countries. In the decade following the Second World War, consumer prices rose by about 50 percent, with most of this increase coming between 1945 (when wartime price controls were still in effect) and 1951 (after the initial upsurge of prices at the beginning of the Korean War). Inflation of this magnitude may not now seem particularly rapid in light of the experience of the 1970s, but it was a sharp departure from the normal pattern of postwar deflation following wartime inflation that occurred after both the U.S. Civil War and the First World War. Indeed, deflation and even the return of depression were widely anticipated after the Second World War. Moreover, until the accord between the U.S. Treasury and the Federal Reserve in 1951, U.S. monetary policy was devoted primarily to keeping interest rates on the government debt very low. This was a monetary policy that both fueled and accommodated the postwar inflation.

The impact of this inflation on the real value of the federal debt was very great. In nominal terms, the gross federal debt in 1945 was $260 billion and was equal to 123 percent of GDP. In 1955 nominal gross federal debt had risen slightly to $274 billion (reflecting a small cumulative federal deficit) but had fallen to 71 percent of GDP. Though real growth of the U.S. economy accounted for about 10 percentage points of the decline in the ratio of debt to GDP, the main factor was the substantial (and mainly unanticipated) inflation that occurred in the years after the war. Specifically, using the 60 percent increase in national product deflator to measure inflation, the inflationary effect accounts for a drop of almost 40 percentage points in the ratio of federal debt to GDP.[10]

Between 1955 and 1965, nominal gross federal debt rose by 18 percent, from $274 billion to $322 billion. Relative to GDP, however, the ratio of gross federal debt fell by 23 percentage points from 71 percent to 48 percent. The real growth of the U.S. economy (by 40 percent) accounts for almost all of this reduction in the debt-to-GDP ratio. By 1955, annual inflation of about 2 percent was probably being anticipated and reflected in government borrowing

costs. Analytically, therefore, actual inflation was only offsetting the growth in the nominal debt that was occurring because of higher nominal borrowing costs associated with anticipated inflation.

Between 1965 and 1980, the federal budget generally showed significant deficits and the nominal gross federal debt almost tripled, to $909 billion. However, inflation offset much of the growth in the nominal stock of debt; and with the economy also growing strongly in real terms, the ratio of gross debt to GDP fell from 48 percent to 34 percent. During this period, inflation was on an erratic upward path, and actual inflation probably somewhat outpaced anticipated inflation. Hence, some reduction in the real value of government debt was properly attributable to inflation surprises. With the debt-to-GDP ratio generally declining, it is not particularly surprising that the political system did not seem to treat the federal deficit as a critical problem, despite rhetoric to the contrary.

Between 1980 and 1994, gross federal debt rose enormously (by a factor of five) in nominal terms to $4.6 trillion. Inflation and real growth offset much of the effect of this nominal increase on the debt-to-GDP ratio; but this ratio still more than doubled to 70 percent of GDP. In contrast to previous periods, actual inflation probably ran somewhat *below* anticipated inflation so that some of the rise in the real value of the debt reflected the surprise element in disinflation. Looking through the veil of inflation, however, the key point is that persistently large federal deficits that imply continually rising ratios of debt to GDP are a real problem. The growing political consensus to do something serious to reduce the federal deficit presumably reflects this reality.

The details of this story vary somewhat across different countries, but the main elements of the plot are the same. Inflation, and generally to a lesser extent real growth, need to be taken into account when interpreting conventional measures of the government deficit. *Unanticipated* inflation erodes the real value of the outstanding stock of government debt. This happened in many countries early in the postwar era when inflation rates were generally positive while price stability was still generally the expected norm. It happened to

some extent again in the 1970s when actual inflation rates surged ahead of anticipated inflation rates and ex post real interest rates were negative in many industrial countries (Table 4). When inflation is fully anticipated and reflected in nominal interest rates, however, it loses its effective power to erode the real value of government debt.

When fears of future inflation keep the anticipated inflation rate above the actual inflation rate, the effect is to worsen the government's budgetary situation by pushing ex post real borrowing costs above their ex ante level. This often happens during periods of disinflation, as suggested by the relatively high levels of ex post real interest rates in many industrial countries during the 1980s (Table 4). The budgetary costs of restoring reasonable price stability, however, should not be attributed to necessary and desirable efforts to reduce inflation, but rather are properly interpreted as the delayed costs of allowing the credibility of anti-inflation policies to be eroded in the first place. Given the experience with inflation in the postwar era, investors remain sensitive to signs that inflation may accelerate. Accordingly, the prospects for reducing the real level of government debt by generating unanticipated inflation have been substantially curtailed; and the budgetary costs of lack of anti-inflation credibility have escalated. This latter fact is apparent in the high real interest rates that presently prevail in several industrial countries where confidence in the commitment to reasonable price stability has not yet been fully established. Moreover, the increasing public insistence that the maintenance of reasonable price stability be the central objective of monetary policy and the growing independence of central banks as institutions mandated to pursue this objective further constrain the future use of inflation as a means of eroding government indebtedness.

Finally, it is important to note the implications of the relationship between real interest rates and the real growth rate for the dynamics of government debt. When the real interest rate is below the real growth rate, the ratio of government debt to GDP is intrinsically nonexplosive; that is, the debt ratio declines over time provided that government revenues and noninterest spending are maintained at

constant ratios relative to GDP. In contrast, the debt ratio is intrinsically explosive when the real interest rate (on government debt) exceeds the real growth rate. The only way to stabilize the debt ratio in this situation is to run a primary (noninterest) surplus. Since the early 1980s, real interest rates have generally exceeded real growth rates (Table 4). This is another indicator of the urgency of addressing the problem of government deficits.

The sustainability of current trends

The recent evolution of government debt ratios for selected industrial countries is documented in Table 5. It is clear that public debt ratios have risen almost everywhere, and by amounts that are unprecedented in peacetime. Moreover, a comparison of current deficit levels with the levels that would just stabilize debt-to-GDP ratios generally indicates that debt ratios will continue to increase unless new measures are taken to rein in spending or raise taxes.

Are such increasing debt levels sustainable? We do not have any theories that predict a precise upper limit for debt ratios. Also, it is true of government debt that "we owe most of it to ourselves;" net international indebtedness for industrial countries is generally a modest fraction of total government debt. If the world were Ricardian, then the choice between financing deficits through debt issue and by increasing (distortionless) taxes would have no important consequences; in principle, virtually any debt stock would be sustainable. Clearly, however, several of the conditions for Ricardian equivalence do not hold, including the assumption that taxes are not distortionary and that individuals have infinite horizons, as a result of caring about the welfare of their descendants to the same extent as about their own welfare. High debt levels require high tax rates to service them, and taxes have important distortionary effects, since in practice there are no "lump-sum" taxes. For instance, the high level of taxation on labor income in Europe to support social security programs—including employers' social contributions—is an important disincentive to employment. It is therefore not possible to increase debt levels indefinitely without high social costs. Moreover, governments whose indebtedness is high

Table 5
Industrial Countries: General Government Gross Debt
(In percent of GDP)

	1980	1985	1990	1994
Australia	...	...	...	35.1
Austria	37.2	49.6	56.2	59.0
Belgium	81.6	122.6	128.4	136.0
Canada	44.3	64.7	73.1	95.6
Denmark	33.5	64.1	59.7	68.7
Finland	11.8	16.6	14.5	60.1
France	20.8	31.0	35.4	48.4
Germany[1]	31.8	41.7	43.4	49.8
Greece	24.2	50.6	73.9	114.1
Italy	57.8	82.3	102.1	129.0
Japan	52.0	68.7	69.8	83.3
Netherlands	46.6	71.5	78.8	79.4
New Zealand[2]	44.8	63.7	60.9	55.2
Norway	52.2	40.7	39.2	50.1
Portugal	...	...	67.7	70.5
Spain	17.5	45.1	45.1	62.8
Sweden	44.3	66.7	44.9	92.2
United Kingdom	49.6	52.7	34.4	46.0
United States	43.6	51.5	59.9	68.9

Source: IMF, *World Economic Outlook* database.
[1]Data refer to western Germany through 1990, united Germany thereafter.
[2]Central government gross debt.

and rising pay large interest rate premiums, since potential purchasers of that debt know that there is a chance that governments may in the end refuse or be unable to levy the taxes required to service it. Since the individuals who purchase debt do not necessarily pay the taxes, there are also important distributional consequences of accumulating a large debt.

These fiscal problems are actually considerably worse than appears from looking only at visible stocks of government debt. Account also must be taken of the very large and growing liabilities that are implicit government commitments to provide social benefits, particularly for the aged. This issue has already been emphasized in terms of the past buildup in levels of government spending; it also needs to be evaluated looking forward in order to gain a proper understanding of governments' future financing problems.

Concerning prospects for population aging, Table 6 gives a summary of the World Bank's demographic projections for the major industrial countries and for the Organization for Economic Cooperation and Development (OECD) area as a whole. They imply a large increase in the proportion of those over 60 in the total population. Associated with this, the number of retired persons relative to those at work (and hence relative to potential contributors to public pension plans) will increase substantially. These trends imply a large deterioration in the financial balance of what are largely pay-as-you-go public pension plans, starting around the second decade of the next century in most countries.

The OECD has estimated the extent of these public pension liabilities for the G-7 countries, as reported in Table 7. For the United States, total estimated liabilities (in present value terms) amounted to 167 percent of 1994 U.S. GDP. Assets in the social security trust fund provide a small offset to these liabilities, equal to 6 percent of 1994 GDP. (They are not taken into account in Table 7.) The present value of future contributions (payroll taxes established under current law) provides a much larger element of funding, 136 percent of 1994 GDP. This leaves net liabilities equivalent to 31 percent of 1994 GDP that must be met either by further increases in contributions or by future cuts in benefit levels, once the assets in the social security trust fund are depleted. These net liabilities compare with visible debt of general government equal to 60 percent of GDP in 1990.

For all of the other G-7 countries except the United Kingdom, the future fiscal implications of public pensions schemes look far worse even than for the United States. With more generous (and hence

Table 6
Percentage of the Population over Sixty Years Old, 1990-2050[1]

	1990	2010 P	2030P	2050P
OECD	18.2	23.1	30.7	31.2
United States	16.6	19.2	28.2	28.9
Japan	17.3	29.0	33.0	34.4
Germany	20.3	26.5	35.3	32.5
France	18.9	23.1	30.1	31.2
Italy	20.6	27.4	35.9	36.5
United Kingdom	20.8	23.0	29.6	29.5
Canada	15.6	20.4	30.2	30.6
Developing countries in:				
Latin America and the Caribbean	6.9	9.3	16.0	23.5
Eastern Europe and former Soviet Union	15.3	18.2	22.7	26.5
Middle East and North Africa	5.7	6.5	9.8	14.5
Sub-Saharan Africa	4.6	4.5	5.9	9.9
Asia	7.4	9.5	16.3	22.1

Source: World Bank (1994), Table A2.
P = projections.
[1]Regional figures are weighted averages of individual countries.

expensive) public pension schemes, the present value of pensions for these countries ranges between 195 percent of GDP (for Canada) and 351 percent of GDP (for Germany). After subtracting the present value of contributions, net liabilities (as ratios to GDP) are for all countries except the United Kingdom substantially greater than the U.S. level and for Japan, Germany, and France considerably larger than visible public debt.[11] The situation looks even worse when account is taken of commitments to provide future health care benefits for retirees (see Heller and others, 1986). In this area, the United States is not in a particularly favorable position.[12]

Table 7
Estimated Net Pension Liabilities: Present Value of Contributions and Pension Payments
(Percent of 1994 GDP)

	United States	Japan	Germany[1]	France[2]	Italy	United Kingdom	Canada
A. Pension payments	167	294	351	319	312	142	195
B. Contributions	136	184	212	221	199	123	96
C. Net liabilities (A-B)	31	110	139	98	113	19	99

Source: OECD *Economic Outlook*, 57, June 1995, Table 20 (Base case).

[1]Excludes statutory transfers from the Federal Government.

[2]Excludes "fictive" contributions.

At present, these large implicit liabilities do not show up in the public debt figures and do not influence the measured levels of government deficits. However, unless painful policy adjustments are made, these implicit liabilities will gradually materialize as excesses of public expenditure over revenue and will eventually turn into very large increases in the visible public debt. One of the critical implications of all of this concerns the intergenerational burden of taxation. The taxes that will ultimately be needed to support government policies (and to deal with the visible and implicit government debt), will not be paid solely by today's taxpayers. Therefore, government spending and policies should take account of intergenerational effects, so that future taxpayers do not have to shoulder an excessive and disproportionate burden.

One technique for attempting to take account of these important intergenerational effects is the procedure of "generational accounting" developed by Alan Auerbach, Lawrence Kotlikoff, and their collaborators.[13] They assume that benefit levels remain unchanged, but that fiscal policies are made "sustainable" through future tax increases. Calculations using this procedure for the United States

are reported in Table 8. The results show that as of 1989, a retired male aged 70 could expect to receive net benefits from the government of $46,100, and a retired female of the same age, net benefits of $65,500, over their remaining lifetimes. In contrast, a young male worker aged 20 would make a net lifetime payment to the government of $198,300, and a young female worker would make a net lifetime payment of $97,900.

These results powerfully suggest a substantial problem of intergenerational inequity from public spending and taxation policies in the United States; present retirees receive significant net benefits, while current and future workers make very large net payments. Similar calculations are not generally available for other industrial countries, but they would undoubtedly show the same qualitative result (see comment by K. Shigehara in this volume). Moreover, beyond concerns about equity, these results forcefully bring home the question of whether present public spending policies and the implied policies for taxation are economically and politically sustainable. To maintain present spending policies, future tax rates and social security contributions will need to be raised quite substantially in most countries from already high levels. Economically, the adverse distortionary and disincentive effects of ever higher tax rates will become quite serious. Politically, the generations who will be asked to pay these higher taxes will not expect to receive government benefits that come anywhere near to equaling them in present value terms; at some point they will reach the conclusion of Roberto Durán, "No más!"

The unfortunate dynamics of this problem are that economically it gets more difficult to solve the longer an effective solution is delayed, but politically, delay is often expedient. A sharp unexpected cutback in public pension benefits at some future date will force an immediate reduction of consumption by those then retired, but ignoring the possible need for some scaling back of benefits may be politically popular today. In contrast, a program that would begin immediately with a gradual scaling back of public pension benefits (by modifying the way they are indexed or by gradually raising the age for full benefits for future retirees) would probably stimulate

Table 8
U.S. Generational Accounts in 1989: Net Lifetime Payments to Government or from Government (-) of Individuals, by Age Cohorts [1]
(In thousands of dollars)

Generation's Age in 1989	Males	Females
Future generations [2]	124.4	60.4
0	102.0	49.5
5	123.4	60.2
10	148.3	74.8
15	176.9	83.9
20	198.3	97.9
25	220.1	101.4
30	216.7	98.8
35	203.0	92.2
40	188.5	80.6
45	162.6	62.1
50	116.1	37.2
55	67.8	5.4
60	14.8	-29.7
65	-36.2	-60.3
70	-46.1	-65.5
75	-43.9	-61.8
80	-37.2	-53.3
85	-29.0	-43.9
90	-1.5	-7.4

Source: Auerbach, Gokhale, and Kotlikoff (1991), Tables 1 and 2.
[1]Assuming a real interest rate of 5 percent and productivity growth of 3/4 percent per annum.
[2]Those still to be born, according to demographic projections.

current political opposition, but it would also allow individuals to adjust their lifetime plans for work and private saving to accommodate them to the new policy. More generally, early adoption of a gradual path leading to sustainable public spending programs will spread the burden of adjustment as widely as possible and limit the disruption felt by any particular group. From

this same long-term perspective, it is also important to correct for errors of measurement of inflation that tend to escalate unduly the fiscal costs of indexed social benefit programs. Several studies of the consumer price indexes that are used for indexing in industrial countries suggest that these indexes overestimate the annual inflation rate by about 1 percentage point (or somewhat more) because they fail to account adequately for quality improvements, the introduction of new goods, and other phenomena. Correction of this distortion, compounded over three decades, would imply about a one-third reduction in spending on indexed public pension schemes relative to what would otherwise be the case.[14] Introduction of such a correction would not, of course, change the reality that benefits were being gradually reduced but it might help change the perception that this reality corresponded to an unjustifiable reduction in real benefit levels.

Among all feasible measures, the most generally advantageous are those that also contribute to real economic growth. Compounded over three or four decades, an increase of only one-quarter of 1 percentage point in the annual real growth rate will expand significantly the real economic resources within which longer-term budget problems can be addressed.

Fiscal policy initiatives in G-7 countries to reduce deficits

By and large, the importance of reducing fiscal deficits is increasingly being recognized by the major industrial countries, though in many cases, the tough decisions needed to achieve it are still to be taken. Table 9 summarizes the medium-term fiscal objectives of the G-7 countries. Though these objectives are not particularly ambitious—they mainly imply stabilization of debt-to-GDP ratios, not their reduction—they will nevertheless involve additional measures that have yet to be decided. The following paragraphs give short descriptions of the major fiscal measures that have been taken in the last few years and prospects for the future.[15]

In the *United States*, a number of initiatives since the mid-1980s have attempted to address the large fiscal deficits. The Gramm-Rudman-Hollings Act of 1985 mandated an elimination of the

Table 9
Industrial Countries: Medium-Term Fiscal Objectives

	General Government Budget Balance, 1994	Objectives
	As a percent of GDP	
United States	-2.0	Fiscal policy at the federal level is constrained by the Omnibus Budget Reconciliation Act of 1993, which places nominal limits extending to FY 1998 on discretionary spending and requires that legislation affecting entitlement programs or tax revenues not increase the deficit over a five-year horizon. Many state government are subject to balanced budget requirements.
Japan	-3.0	Two principal guidelines: to reduce the central government bond-financing ratio to 5 percent or lower by the year 2000; and the continued implementation of the planned public investment outlays of ¥ 630 trillion over the period 1995-2004.
Germany	-2.5	To reduce the budget deficit to a sustainable level while allowing, through expenditure restraint, for a reduction in the tax burden. The general government budget deficit is to be limited to 2 percent of GDP by 1996 and be near balance by 1998.
France	-5.8	To reduce the central government deficit to $2^1/_2$ percent in 1997 and the general government deficit to 2 percent. Central government total expenditures are to remain constant in real terms. The debt-to-GDP ratio is to remain below 50 percent and decrease from 1997 onwards.
Italy	-9.2	To stabilize the debt-to-GDP ratio by 1996, while maintaining the tax burden at the 1994 level and limiting the increase in primary expenditure to the target rate of inflation.
United Kingdom	-6.9	The medium-term objective is to bring the public sector borrowing requirement back to balance. Tax increases have contributed to the early phase of the adjustment; over the medium term an important role is to be played by expenditure restraint: total public real expenditure is to grow at a slower rate than potential output.
Canada	-5.3	To reduce the federal budget deficit to 3 percent of GDP in 1996/97.

Source: *World Economic Outlook*, May 1995, Table 5 (p. 28).

federal deficit over a five-year period; however, the across-the-board spending cuts that it authorized in the case of overshoots were not generally implemented. In 1990, a new budget act provided for both revenue increases and for caps on various categories of government spending. With the recession of 1990-91, however, the deficit reduction objectives of this act were not realized. A new deficit reduction plan was approved in 1993, the Omnibus Budget Reconciliation Act, which also included both expenditure cuts and tax increases, but did not aim at a balanced budget. This act, and the recovery of economic activity, have achieved a reduction in the deficit on a unified budget basis from about 4 percent of GDP in 1993 to about 2.5 percent in 1995. However, the deficit excluding social security is closer to 3.5 percent. Congress is currently considering proposals to eliminate the deficit by FY 2002 through expenditure cuts, with the House plan also including tax cuts and accompanied by larger spending reductions. The Clinton Administration has proposed a budget plan that projects the achievement of a balanced budget at a somewhat later date. The prospective widening of the social security deficit (after the turn of the century), however, is not addressed in any of these proposals, and measures to contain future growth of health care expenditures have yet to be fully specified. Proposals for a constitutional amendment requiring the federal government to balance the budget (as is required by a number of state constitutions) have encountered a range of opposition on fundamental as well as practical grounds, but a significant group of politicians and theorists argue that only with such a measure will the incentives to overspending be tamed.[16]

Japan has suffered from four years of slow growth and recession, which has led to a considerable widening of the fiscal deficit through the operation of the automatic stabilizers and through desirable efforts to restrain recession by expansionary increases in the structural deficit. Since Japan is currently running a surplus in its social security system equal to some 3 percent of GDP, the overall fiscal balance is only in deficit by 3.7 percent of GDP in 1995. The deficit excluding social security, however, is about 7 percent of GDP—among the largest of the G-7 countries. Adjusting for the adverse cyclical position (as well as temporary spending on earthquake

reconstruction and other special factors), the structural deficit is about 3.75 percent of GDP. As the recovery eventually picks up, the deficit should narrow somewhat; but the unfavorable effects of population aging will soon begin to affect the social security balance, and the overall deficit can be expected to widen again by the turn of the century, despite recent measures to reduce net pension liabilities by gradually raising the retirement age and contribution levels. While the Japanese authorities recognize the need to address the longer term trends, current policy is focused on giving support to economic activity and dealing with the bad loan problems of the financial sector.

In *Germany*, there is a strong consensus on the need for conservative fiscal policies—such as allowing borrowing only for investment purposes. A manifestation of fiscal conservatism is the incorporation in the Maastricht Treaty, at German insistence, of fiscal norms that must be met by countries proceeding to monetary union. However, the reunification of the two parts of the country in 1990 led to sharply higher deficits, associated with massive subsidies granted to the eastern länder. Since 1991, the authorities have taken determined measures to roll back the general government deficit, which is estimated to have declined to 2.5 percent of GDP in 1994. In 1995, the inclusion in the government accounts of the previously off-budget debt of the Treuhand (which had been entrusted with the task of restructuring and selling off east Germany's state-owned enterprises), raised general government gross debt to 58 percent of GDP and boosted debt service. However, the overall deficit is not set to widen in 1995 because of a 7.5 percent "solidarity" income tax surcharge. The draft budget for 1996 foresees a further decline in the deficit to about 2 percent of GDP, despite the need to implement two sizable tax cuts as a result of rulings of the Constitutional Court. But, over the medium term, Germany will no doubt have to continue to adjust downward the path for government spending, both for deficit reduction and to provide room for a reduction in the high tax burden, as much of the success in cutting the deficit so far has come at the cost of tax increases. The substantial fiscal problems of a relatively generous pay-as-you-go public pension system remain to be fully addressed.

In *France*, a conservative approach to fiscal policy subsequent to the ill-fated expansionary policies of the early 1980s gave way to large general government deficits in the 1990s—equal to about 6 percent in 1993 and 1994. An important effort will therefore be needed to meet the 3 percent Maastricht criterion for the deficit within two years. More specifically, the social security system has recently started to run large deficits, especially due to exploding health care expenditures. The state has attempted to reach agreement with providers of medical care to limit the supply of their services, and there have also been some increases in patients' co-payments for these services. A more thorough-going reform of the health care system, and the social security system as a whole, will be necessary. A study of this issue, commissioned in 1994, has recently been released. It emphasizes expenditure control, but sees also a need for an increase in taxation, preferably the CSG (contribution sociale généralisée). As for the public pension scheme, several of the recommendations contained in the 1990 study, the *Livre Blanc*, to improve the financial balance of pension contributions and benefits have been implemented: 1) the years of service needed for a full pension are being gradually raised from 37.5 to 40; and 2) the period over which salaries are averaged in calculating pension entitlements has been increased to 25 years. Though these measures are significant, they will not be sufficient to prevent substantial contribution increases in the second decade of the next century, so that benefit levels may need to be further adjusted.

In the *United Kingdom*, policy since 1993 has been geared to eliminating in the medium term the public sector borrowing requirement—which had widened alarmingly to about 8 percent of GDP—through tax increases and continuing expenditure restraint. Recent increases in excise taxes and cuts in spending have achieved a substantial decline in the structural deficit since 1993—by about 2.5 percent of GDP. However, the government needs to ensure that medium-term targets are actually met, which does not allow room for tax cuts unless these are matched by additional spending restraint. For the longer term, the United Kingdom has provided incentives for a switch out of the public, pay-as-you-go pension system into funded private pensions, and a number of households

have done so. However, the public system continues to have unfunded liabilities.

In *Italy*, general government deficits for a number of years approached or exceeded 10 percent of GDP. As a result, Italy has the highest government debt-to-GDP ratio among the G-7, 129 percent in 1994. The high debt level has made Italy extremely vulnerable to increases in interest rates, and Italian rates are currently very high in real terms. Successive governments have wrestled with the fiscal problem, which is largely the result of high current expenditure, including social transfers, particularly a generous pension system (with unfunded liabilities in excess of 100 percent of GDP in 1994—see Table 7). The government has begun to address the general fiscal problem, and a pension reform designed to improve the long-term finances of the pension system has recently been approved by Parliament. For the near term, the very high (visible) debt-to-GDP ratio appears to have stabilized and be headed on a downward course. These positive fiscal developments would be materially aided by confidence-building measures that would reduce the very large interest rate premia on Italian government debt. For the longer term, however, further measures to reduce pension and other spending, and to broaden the tax base, will be needed as Italy already has relatively high tax rates.

Despite a decade of fiscal consolidation programs at the federal level, the deficit problem in *Canada* remains serious, with the general government debt reaching 95 percent of GDP in 1994. The medium-term objective, reduction of the federal budget deficit to 3 percent of GDP in FY 1996/97 from 5.8 percent of GDP in FY 1993/94 should place the federal debt-to-GDP ratio on a moderately declining course. In this effort, the federal government will be helped by the recovery of economic activity and the cuts in various subsidies and other spending reductions contained in the February 1995 budget, which are estimated to reduce the 1996/97 deficit by 1.25 percent of GDP. Improvements in confidence that translate into reductions of interest rate premia relative to the United States would clearly benefit the deficit reduction process. The broader problem of the general government deficit is now being addressed by the

plans of most provinces to achieve balanced budgets in the near term. Reform of benefits for the elderly and of unemployment insurance remain as important tasks.

In summary, after a decade and a half of generally rising debt-to-GDP ratios in the major industrial countries, recent and ongoing efforts at fiscal consolidation appear to be placing these (visible) debt ratios on declining paths. That is relatively good news for the near to medium term. For the longer term, the prospect is less satisfactory. Under the impact of changing demographics and rising health care costs, commitments to expensive systems of public benefits, particularly for the aged, imply large and growing stocks of implicit government liabilities. As these implicit liabilities materialize into actual budgetary flows during the early decades of the next century, the fiscal positions of the major industrial countries (and the smaller industrial countries, as well) will again deteriorate. The dynamics of this problem imply urgency in adopting measures that will gradually and persistently operate to establish longer-term fiscal viability. Given high levels of taxation, especially in European countries, and strong political resistance to tax increases (even in the United States, where taxation is lower), solutions have to be found on the expenditure side. In almost all countries, further measures to contain spending on health care and pensions are needed, including a redesign of underlying programs to remove incentives for excessive medical treatment and early retirement.

The situation of developing countries and prospects for the future

The situation of developing countries is very diverse, and it is more difficult to make generalizations concerning their fiscal policies. For many of them, however, levels of expenditures and revenues relative to GDP are lower than for most industrial countries (where they approach, and sometimes exceed, 50 percent)—especially for those developing countries that do not benefit from large amounts of external assistance. Table 10 illustrates this point using available data for central government finances. Government expenditures for developing countries in the Western Hemisphere and Asia

Table 10
Developing Countries: Central Government Finances, 1993
(In percent of GDP)

Region	Revenue	Expenditure	Balance
Africa	21.9	31.3	-9.3
Asia	15.4	17.8	-2.4
Of which: Four newly industrialized Asian economies	18.3	17.6	0.7
Middle East and Europe	29.6	36.3	-6.7
Western Hemisphere	17.3	17.4	-0.1
Countries in Transition	24.6	31.4	-6.8

Source: IMF, *World Economic Outlook*.

are typically around 20 percent of GDP. African countries seem to have somewhat higher central government expenditure levels, about 30 percent of GDP on average, while those in the Middle East and Europe have higher levels still—approaching 40 percent of GDP. Most countries in transition also had high government spending levels in 1993. The data in Table 10 reveal another generalization that can be made for developing countries, namely the prevalence of deficits, with the qualification that several large countries in Latin America—including Argentina, Brazil, and Mexico—and some of the newly industrialized Asian economies are running surpluses. Several of these countries have been successful in rapidly reducing large deficits—in contrast to the sluggishness of fiscal adjustment in most industrial countries.

The lower levels of government spending in developing countries reflect much lower levels of spending on social security (Table 11). This is especially true of countries in Africa and Asia, less so of those developing countries in the Middle East and Europe and in the Western Hemisphere. High levels of social spending relative to GDP were recorded for the countries in transition in recent years.

Table 11
Central Government Expenditure by Function
(As a percent of total)

Country	Year	Education	Health	Social Security	Defense	Other
		Major Industrial Countries				
United States	1993	2	17	29	19	32
United Kingdom	1992	3	14	30	10	43
France	1991	7	16	44	6	27
Unified Germany	1991	1	17	45	6	31
Italy	1988	8	11	38	4	39
Canada	1991	3	5	40	7	46
		Other Industrial Countries				
Australia	1992	7	13	32	8	40
Austria	1992	9	13	45	2	30
Belgium	1988	12	2	42	5	39
Denmark	1991	10	1	39	5	45
Finland	1992	13	—	49	4	33
Greece	1993	9	7	13	9	62
Iceland	1994	12	24	24	—	40
Ireland	1992	13	14	28	3	42
Luxembourg	1992	8	3	49	1	39
Netherlands	1993	10	14	38	4	34
New Zealand [1]	1993	14	12	39	4	31
Norway	1992	10	10	39	7	33
Portugal	1988	11	9	26	6	48
Spain	1992	4	6	39	4	47
Sweden	1993	7	—	47	5	39
		Africa				
Burkina Faso	1987	14	5	1	18	62
Cameroon	1993	33	5	1	9	52
Comoros	1995	20	6	—	4	63
Ethiopia	1990	10	3	4	39	44
Gambia, The	1990	11	6	3	4	75
Guinea Bissau	1987	5	5	9	4	76
Côte d'Ivoire	1990	30	5	1	6	58
Kenya	1993	19	5	—	6	70

Table 11 (continued)
Central Government Expenditure by Function
(As a percent of total)

Country	Year	Education	Health	Social Security	Defense	Other
		Africa (continued)				
Lesotho	1991	22	9	2	6	61
Liberia	1988	11	5	1	9	73
Madagascar	1991	17	7	1	8	67
Mali	1988	9	2	3	8	78
Mauritius	1994	16	9	16	1	58
Morocco	1992	19	3	1	15	62
South Africa	1985	7	2	6	6	80
Tanzania	1994	13	9	1	9	68
Togo	1987	20	5	7	11	57
Tunisia	1992	18	7	14	5	56
Zaire	1993	—	—	1	26	73
Zambia	1993	13	8	1	—	78
Zimbabwe	1989	23	8	3	16	49
		Asia				
Bhutan	1994	10	8	—	—	81
India	1993	2	2	—	15	81
Indonesia	1993	10	3	—	6	81
Korea	1994	18	1	10	17	54
Malaysia	1994	21	5	6	12	56
Myanmar	1992	17	7	5	33	38
Nepal	1985	12	5	1	6	76
Pakistan	1994	1	—	1	25	73
Singapore	1993	25	6	4	25	41
Sri Lanka	1993	10	5	15	14	56
Thailand	1992	21	8	4	17	50
Tonga	1991	13	7	1	—	80
Vanuatu	1990	15	8	—	—	78
		Middle East and Europe				
Bahrain	1993	4	3	—	10	—
Egypt	1993	11	2	9	25	63

Table 11 (continued)
Central Government Expenditure by Function
(As a percent of total)

Country	Year	Education	Health	Social Security	Defense	Other
Middle East and Europe (continued)						
Iran, Islamic Republic of	1993	19	7	11	7	56
Israel	1993	12	4	23	20	40
Kuwait	1994	11	6	18	24	52
Syrian Arab Rep.	1992	9	2	2	7	48
Yemen, Republic of	1992	19	4	—	28	49
Cyprus	1991	11	7	22	3	57
Malta	1993	12	12	34	2	39
Turkey	1993	17	3	4	9	67
Western Hemisphere						
Argentina	1989	10	3	39	10	38
Bahamas	1986	25	18	9	3	44
Barbados	1989	19	12	22	2	46
Belize	1985	15	9	8	6	62
Bolivia	1993	11	7	12	8	62
Brazil	1992	4	8	28	3	57
Chile	1993	14	12	35	9	30
Colombia	1986	25	4	18	9	44
Costa Rica	1993	22	28	11	—	39
Dominican Republic	1990	10	15	5	5	65
Guyana	1985	8	4	5	8	75
Haiti	1993	13	7	—	13	67
Mexico	1990	14	2	12	2	69
Netherlands Antilles	1992	6	7	34	—	53
Nicaragua	1993	14	13	15	7	51
Panama	1993	20	20	22	5	32
Paraguay	1994	21	8	14	10	47
Peru	1989	20	5	—	15	59
St. Kitts and Nevis	1987	18	12	9	—	60
St. Lucia	1985	22	10	4	—	63
Suriname	1986	18	4	6	4	68

Table 11 (concluded)
Central Government Expenditure by Function
(As a percent of total)

Country	Year	Education	Health	Social Security	Defense	Other
Western Hemisphere (continued)						
Trinidad and Tobago	1992	14	8	11	1	66
Uruguay	1993	7	5	60	5	23
Venezuela	1986	20	10	7	6	58
Countries in Transition						
Azerbaijan	1992	5	2	47	10	36
Belarus	1993	10	6	36	6	42
Bulgaria	1993	3	3	32	6	56
Former Czechoslovakia	1991	7	6	31	5	50
Estonia	1993	9	18	34	3	36
Hungary	1990	3	8	29	4	57
Lithuania	1993	7	5	37	3	47
Mongolia	1993	3	2	18	11	66
Romania	1992	9	8	23	8	52
Russia	1994	3	1	29	17	50

Source: IMF, *Government Financial Statistics*; and staff estimates.
[1]Budgetary central government expenditure.

Lower social security spending in developing countries is consistent with the argument made above that social security is a superior good and also with the much younger age structure in these countries. Poorer countries cannot afford to provide large-scale social protection or income support, and they often lack the means of raising the revenue necessary to finance such benefits. The extended family and private saving also to some extent reduce the need for public pensions. In any case, providing government pensions to the elderly may be considered less important than putting in place the infrastructure needed for economic growth (including education), when there are constraints on available resources.

As development proceeds, the challenge for developing countries will be to avoid the pressures for excessive government spending that have become endemic in industrial countries, while providing needed social services from a mixture of private and public sources. This will be especially necessary because the demographic trend to an older population will also occur in developing countries. However, most developing countries have the advantage at present that the average age of the population is still very young. Therefore, contributory social security schemes can be brought in at a relatively favorable time, and provided the schemes are well designed, reserves can be built up to provide for the future aging of the population. Indeed, the World Bank estimates that while the proportion of those over 60 in industrial countries was 18 percent in 1990, in developing countries in Asia, Latin America, and the Middle East it averaged 6 percent to 7 percent, and in Sub-Saharan Africa it was 5 percent (Table 6). Though these proportions are to increase gradually, in 2010 they are still projected to be modest, averaging well under 10 percent in all regions except the transition economies of Eastern Europe and the former Soviet Union, which have population age structures that are very similar to those of industrial countries.

Fully funded schemes need not necessarily be the objective; a combination of a public, pay-as-you-go system providing subsistence benefits and funded private pensions may be more equitable. Such a partially funded system can avoid the need to drastically lower benefits or raise contributions when demographic developments or wage trends are different from what was expected, as has occurred in industrial countries. There are several promising examples of funded plans in developing countries that may serve as models for others, at least for the wealthier among them. Both Chile and Singapore have mandatory pension schemes with benefits linked to contributions, which have built up large portfolios of assets and contributed to high national saving rates. Moreover, at least since the early 1980s, both countries have experienced high rates of output growth.

The Chilean example is particularly interesting because it suggests that a switch from an unfunded, defined-benefit pension plan to a funded defined-contribution plan can be implemented successfully,

and may contribute to the development of financial markets and favor economic growth—though evidence of the latter is not yet conclusive. The 1980 pension reform made participation in the new funded system mandatory for employees and optional for the self-employed; the transition involved the government's issuing bonds to those who had contributed to the old system, and grossing up their salaries to compensate them for the loss of the old scheme's employers' contribution. In evaluating the transition, Holtzmann's preliminary conclusions are that the empirical evidence is consistent with the hypothesis that the reform contributed to total factor productivity growth and to capital formation (Holtzmann, 1995). However, he argues that the direct effect on private saving was negative, and the rise in the private saving rate was more likely due to the growth rate effects. In judging whether the Chilean example was a useful model for transforming economies of Central and Eastern Europe, he cautioned that reform needs to be comprehensive and associated with tight fiscal policy. The latter is necessary because reform involves transforming the government's implicit social security debt into explicit interest-bearing financial debt, which is difficult to do in a context of large, conventional financing needs.[17]

In Singapore, employers and workers make mandatory contributions to a "central provident fund," which invests in domestic and foreign assets. Contribution rates are high—currently 20 percent for each. Singapore's saving rate is also very high—in excess of 40 percent. Withdrawal of contributions is restricted, though there has been some relaxation in recent years, permitting workers to use their contributions for home purchase. High saving has no doubt contributed to high investment levels in Singapore and rates of growth consistently above 5 percent per year over the past two decades.

The experience of Chile and Singapore is relevant to other developing countries because, even though they are relatively high-income countries, they instituted their policies when they were less advanced. The World Bank in a recent study (World Bank, 1994) advocates that countries should aim at providing financial security for the old built on three pillars: a publicly managed system with mandatory participation and the limited goal of reducing poverty

among the elderly, a privately managed mandatory savings system, and voluntary saving. In contrast to many industrial countries, the publicly managed scheme would not be expected to provide the bulk of retirement income, and hence would not involve large-scale income transfers between workers and retirees if financed on a pay-as-you-go basis. The privately managed pillar would likely involve funded schemes with defined contributions, as in Chile, and would be expected to provide the largest part of retirement income.

Final remarks

To conclude, during the course of the present century and especially during the past 50 years, the governments of industrial countries have taken on extensive commitments to social benefit programs whose rising budgetary costs have been the key driving force behind rising shares of government spending in national income. A general sense of "entitlement" to the benefits provided by these programs has reinforced political opposition to any scaling back of these benefits, while a series of mistakes and miscalculations has increased significantly the fiscal costs of these benefits. Government revenues have also risen substantially relative to GDP and to quite high levels; but during the past two decades, revenues have not kept pace with spending. For much of the postwar era, until roughly 1980, ratios of government debt to GDP were declining or stable—a result that was aided to some extent by unanticipated inflation. Since 1980, however, debt ratios have generally been rising, thereby indicating that fiscal positions are unsustainable. In many industrial countries, important steps have recently been taken or are in prospect to rein in fiscal deficits and to begin to put debt-to-GDP ratios on declining paths over the medium term. For the longer term, however, fiscal sustainability is not yet assured, primarily because of the rising costs of providing pension and health care benefits to the growing numbers of aged in the populations of the industrial countries. With rates of taxation and social contribution already very high in most industrial countries, longer-term fiscal problems cannot plausibly be resolved primarily on the revenue side of government budgets. The growth of government spending on

social benefit programs will need to be scaled back relative to that implied by present policies. An early start will allow much of this required scaling back to be achieved by reducing the growth of real benefits for future retirees, thereby allowing these individuals time to adapt to the necessary changes in government policy.

For some developing countries, which have relatively generous social welfare programs and relatively high (and growing) ratios of aged in the population, the longer-term fiscal problem is much the same as in the industrial countries. For most developing countries without these characteristics, the situation is fundamentally different, but not permanently so. As real incomes rise, these countries will probably need to respond to the general desire for rising levels of pensions, health care, and other benefits that have been observed in the industrial countries during the present century. Also, as development proceeds, life expectancy will rise and birthrates will decline, leading to significantly higher ratios of aged to total populations sometime later in the next century. Seeing these things coming, it is reasonable to project that ratios of government spending and government revenues to GDP will tend to rise in many developing countries. However, there is no need for these countries to make the mistakes and miscalculations that have contributed to the longer-term fiscal woes that now afflict the industrial countries. In particular, it should be possible to avoid the trap of pay-as-you-go public pension schemes that can finance relatively generous benefits with low contribution rates when the aged are relatively few, but become fiscal nightmares when the aged are relatively numerous. There are attractive options for meeting the rising demands for various "social benefits" that are the concomitants of successful development without relying excessively on governmental commitments to finance such benefits. In particular, developing countries should explore mixed public and private pension schemes, with a greater element of funding than is the case in many industrial countries.

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Endnotes

[1]A detailed examination of deficit and debt data for industrial countries since 1970 is presented in Tanzi and Fanizza (1995).

[2]The exceptional nature of budget deficits has been documented in many places; for instance, Ornstein (1985) calculates that without the deficits caused by the wars in the nineteenth century, the U.S. federal government would have had a budget surplus at the beginning of the twentieth century, and without the deficits caused by the two world wars, it would have had a negligible debt in 1961 (rather than debt equal to some 60 percent of GDP).

[3]See Anderson (1987), p. 22.

[4]Unweighted, and excluding Italy.

[5]Anderson (1987) argues that in the case of the United States, growth in spending became increasingly automatic, and individual politicians could evade responsibility for the resulting deficits because of changes in the way Congress was run.

[6]There is general misconception that encouraging early retirement or reducing working hours for those employed will open job opportunities for the unemployed and lead to a reduction of unemployment rates. This is a version of an even broader misconception—the fixed number of jobs fallacy—that encourages many errors of government policy; see Mussa (1993).

[7]The U.S. Social Security system (for retirement benefits) is not fully funded; it is basically a pay-as-you-go system that has been modified to smooth out the effects of changes in the age structure of the population. The amounts accumulated in the trust fund constitute only a modest fraction (estimated to be about 20 percent) of the present value of the prospective benefits of current retirees and of future retirees who have already built up claims on the system through their past payroll contributions. The objective of the 1983 reforms was not to create a fully funded system; it was only meant to assure that the trust fund remained "solvent" in the sense that it did not completely run out of money.

[8]The growth rate decline has been linked to the oil price shock in 1973; however, lower oil prices from the mid-1980s onward do not seem to have stimulated productivity growth. The oil shock in the 1970s may, in addition, have led to an attempt to cushion output losses through higher government spending, leading to a widening of deficits. On the other side, the unanticipated inflation helped to reduce public debt-to-GDP ratios.

[9]Among the seven largest industrial countries, the United States has the smallest cumulative increase in the price level since 1945. Inflation in both Germany and Japan was quite high in the few years after the end of the war. Italy and France also experienced relatively rapid inflation in the decade after the war's end. Prices in the United Kingdom have risen about twice as much as in the United States, and prices in Canada have risen somewhat more than in the United States. Looking more broadly at the smaller industrial countries, Switzerland has had somewhat less cumulative inflation during the past fifty years than the United States.

[10]Nominal interest rates on federal debt were very low before the Accord of 1951 and remained quite low through 1955. There was very little inflation premium in these nominal interest rates even by 1955, and it is arguable that expectations of deflation (and an accommodative monetary policy) generated negative inflation premia in the years immediately following the Second World War. From the perspective of holders of federal debt, it is not too extreme to

conclude that essentially all of the inflation between 1945 and 1955 was a surprise and represented an unexpected loss in the real purchasing power of these federal obligations.

[11]Though Japan's pension system has assets equal to some 37 percent of GDP, while the other public pension plans are essentially unfunded.

[12]Health care benefits and other public services are also provided to working people and to children, and the future provision of such services implies a continuing stream of public expenditures. However, it generally seems relevant to treat these public benefit programs on a pay-as-you-go basis, under the assumption that benefit levels and contribution rates will be adjusted to keep public benefit programs in fiscal balance. For benefits to retirees, who typically do not continue to make contributions to social insurance programs, it is more relevant to be concerned with the net liabilities that are implied by a changing demographic structure and by rising real health care costs. These net liabilities are the present value of the amount by which taxes or contribution rates would need to be raised in order to sustain the present path of program benefits.

[13]See Auerbach, Gokhale, and Kotlikoff (1991). Generational accounts have been criticized for requiring arbitrary assumptions about the distant future. Whatever their deficiencies, they have the merit of raising issues that are too easily ignored in public debate. A clear statement of assumptions (even if somewhat arbitrary) enhances the transparency of government accounts and makes clear implicit future commitments.

[14]In public pension schemes, the initial level of benefits at retirement often depends on the level of earnings, while post-retirement increases in benefits are linked to the consumer price index. The growth of earnings over time raises the level of benefits at retirement both because of inflation and because of real earnings growth. Measurement of increases in real earnings is also distorted by the bias in measuring inflation. Correction of this bias in determining initial retirement benefits implies that these benefits will not keep pace with the earnings of employed workers, but it does not imply any reduction in the (correctly measured) level of real retirement benefits.

[15]A review of G-7 policy measures, and an attempt to quantify their macroeconomic effects, are presented in Bartolini, Razin, and Symansky (1995).

[16]An advocate from the "public choice" school is Rowley (1987c).

[17]See also the discussion in World Bank (1994), Box 8.5 (pp. 267-68).

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