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BUDGET ISSUES

Analysis of Long-Term Fiscal Outlook



**Accounting and Information
Management Division**

B-278394

October 22, 1997

The Honorable Pete V. Domenici
Chairman, Committee on the Budget
United States Senate

The Honorable John R. Kasich
Chairman, Committee on the Budget
House of Representatives

As you requested, this report updates our previous simulations of the long-term economic impact of federal budget policy. In 1992, we first used a macroeconomic model to simulate the effects of alternative fiscal policy paths in promoting or inhibiting long-term economic growth and the results supported the view that deficit reduction was key to our nation's long-term economic health.¹ In 1995, our updated simulations indicated that a path of "no action," under which current policies remain unchanged, could not be sustained over the long run.² We identified three forces driving the long-term growth of the budget deficit—health spending, Social Security, and interest costs. Since our 1995 report was issued, the Congress and the President have taken additional fiscal action to eliminate the annual deficit, culminating in the recent passage of the Balanced Budget Act of 1997 (BBA). The Congressional Budget Office (CBO) projects that these actions, along with the recent strong performance of the economy, will eliminate the deficit by 2002 and achieve several years of budget surpluses.

In this report, we have updated our work to address the long-term budget outlook following passage of BBA to help the Congress assess the long-term consequences of current policies and alternatives. We used our long-term economic growth model to simulate the path resulting from the BBA through the year 2050 assuming no further policy changes ("no action"). For this path, we adopted CBO's 10-year budgetary and economic projections, under which the federal government would run budget surpluses from 2002 through 2007, the end of CBO's forecast period.³

¹Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy (GAO/OCG-92-2, June 5, 1992).

²The Deficit and The Economy: An Update of Long-Term Simulations (GAO/AIMD/OCE-95-119, April 26, 1995).

³CBO's budget projections, and thus our simulations using CBO data, reflect the net effect of the Balanced Budget Act of 1997 as well as the Taxpayer Relief Act of 1997.

In addition to simulating the long-term results of current fiscal policy, we also developed several alternative fiscal policy paths to illustrate how overall fiscal policy changes can affect future budgetary and economic outcomes. While this report discusses the consequences of alternative fiscal paths, it does not suggest any particular course of action, since the choice of the most appropriate fiscal policy path is a policy decision to be made by the Congress and the President. As discussed with your office, three alternatives were chosen to represent different degrees of fiscal restraint. Two of these alternatives follow the “no action” path in the early years of the simulation period but then shift direction once deficits reemerge in the second decade of the 21st century by maintaining either a budget balance or modest deficits through the remainder of the simulation period. A third alternative path would run larger surpluses than the “no action” path in the near term and for a longer period of time.

Simulations are useful for comparing the potential outcomes of alternative policies within a common economic framework but should not be interpreted as forecasts of the level of economic activity 50 years in the future given the range of uncertainty about future economic changes and the responses to those changes.⁴ Simulation results provide qualitative illustrations, not quantitative forecasts, of the budget or economic outcomes associated with alternative policy paths. In our simulations, we employed a model originally developed by economists at the Federal Reserve Bank of New York (FRBNY) that relates long-term gross domestic product (GDP) growth to economic and budget factors. All models require the use of assumptions to permit extrapolations to be made. For details of the model’s assumptions, see appendix I.

Background

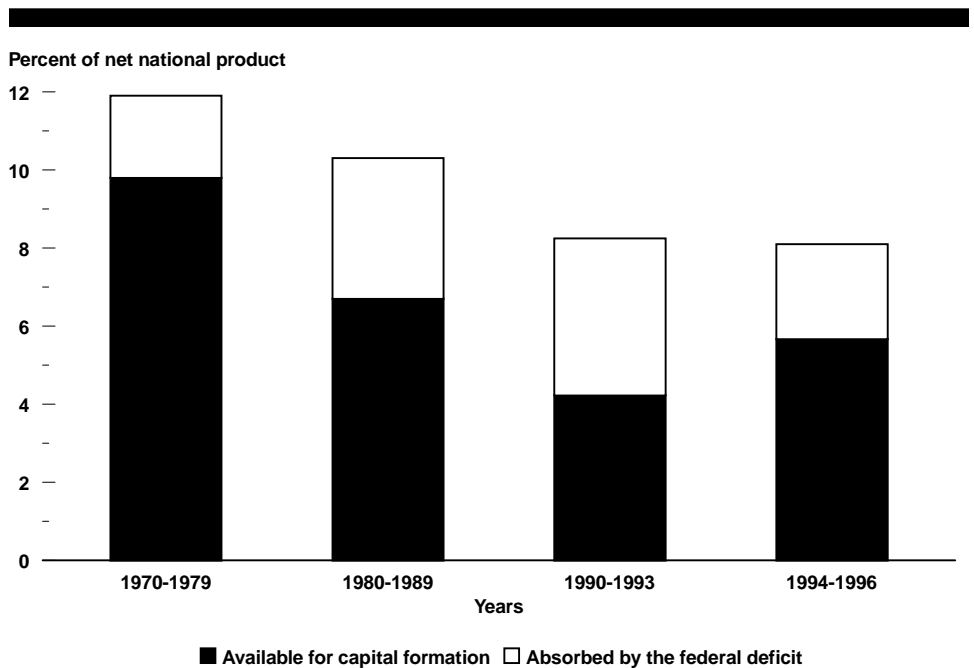
Economic growth—which is central to many of our major concerns as a society—requires investment, which, over the longer term, depends on saving. The nation’s saving consists of the private saving of households and businesses and the saving or dissaving of all levels of government. In general, government budget deficits represent dissaving—they subtract from national saving by absorbing funds that otherwise could be used for investment. Conversely, government surpluses add to saving.

Since the 1970s, private saving has declined while federal budget deficits have consumed a large share of these increasingly scarce savings. The

⁴The impact of federal spending reduction on aggregate national saving and investment depends on how consumers respond to such reductions. For example, a reduction in federal Medicaid spending may result in greater private spending on nursing home care thereby diminishing the effect on total national saving.

result has been to decrease the amount of national saving potentially available for investment.⁵ Since we last reported on this issue in 1995, private saving has remained low. However, federal budget deficits have declined significantly from the levels of the 1980s and early 1990s, freeing up some additional funds for investment. (See figure 1.) Nevertheless, total national saving and investment remain significantly below the levels experienced in the 1960s and 1970s. Economists have noted that these low levels of saving and investment raise concerns for the nation's future productive capacity and future generations' standard of living. As we have said in our earlier reports, the surest way to increase the resources available for investment is to increase national saving, and the most direct way for the federal government to increase national saving is to achieve and maintain a balanced federal budget. Running budget surpluses would further increase saving and allow the government to reduce the level of federal debt held by the public.

Figure 1: Effect of the Federal Budget Deficit on Net National Saving (1970-96)



Note: Entire bar represents nonfederal saving net of capital depreciation. Shaded portion of bar represents net national saving. Nonfederal saving is comprised of private saving and the aggregate state and local government surplus/deficit.

Source: GAO analysis of U.S. Department of Commerce data.

⁵The depressing effect of deficits on growth might have been mitigated had they financed higher levels of public investment. However, as a share of GDP, federal investment spending has actually declined over the past two decades.

Our earlier work concluded that without further policy action, commitments in federal retirement and health programs would together become progressively unaffordable for the nation over time, and the economic consequences would force belated and painful policy choices. Growing deficits and the resulting lower saving would lead to dwindling investment, slower growth, and finally a decline in real GDP. Living standards, in turn, would at first stagnate and then fall. These findings supported our conclusion that action on the deficit might be postponed, but it could not be avoided.

The results of our past work have been very similar to the conclusions reached by other government entities and private analysts. Most notably, CBO published analyses based on its long-term model work in 1996 and 1997 that corresponded with our main findings.⁶ Also, in 1994-95, the Bipartisan Commission on Entitlement and Tax Reform reached similar conclusions in its study of future fiscal trends.

Since our 1995 report, robust economic growth and policy action have combined to sharply reduce the deficit and are projected by CBO to result in budget surpluses in the near term. This report addresses the outlook for the budget over the longer term. We will explore how recent progress affects this outlook and the fiscal and economic impacts associated with alternative long-term fiscal policy strategies.

Results in Brief

Major progress has been made on deficit reduction in the past several years, culminating in the passage of the Balanced Budget Act of 1997. The balanced budget or surpluses that are projected would represent an enormous improvement in the federal government's fiscal position through the next 10 years. Moreover, the improvements in national saving and reduced debt and interest costs can be expected to produce tangible gains in economic growth and budgetary flexibility over the longer term as well. As a result, the emergence of unsustainable deficits is substantially delayed under recently enacted fiscal policy. While our 1995 simulations showed deficits exceeding 20 percent of GDP by 2024 if current policies were not changed, our updated model results show that this point would not be reached until nearly 2050.

Notwithstanding this progress, if no further action were taken, (a "no action" scenario), our simulations indicate that federal spending would

⁶Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1997-2006*, May 1996, and *Long-Term Budgetary Pressures and Policy Options*, March 1997.

grow faster than revenues soon after the baby boom generation begins to retire in 2008. These higher spending levels would be driven by escalating health and Social Security costs. Rising interest costs would compound the deficit problem and take up an increasing share of the federal budget. Our simulations show that growing deficits, left unchecked, would eventually result in declining investment and capital stock and, inevitably, falling living standards. Over the long term, the “no action” scenario is unsustainable. Timely policy action can avoid these economic consequences. While a “no action” simulation is not a forecast of what will happen, it illustrates the nature of future fiscal challenges.

The alternative simulations illustrate the potential fiscal and economic benefits of achieving a sustainable budget policy. According to our simulations, a fiscal policy of balance through 2050 or extended periods of surplus, for example, could shrink the burden of federal interest costs considerably and also result in a larger economy over the long term. All of these alternative policies would increase per capita GDP in 2050 by more than 35 percent over a “no action” policy, but they would require additional fiscal policy changes. Some of these changes may be difficult to achieve, but over the long term they would strengthen the nation’s economy and overall living standards. Early action would permit changes to be phased in and so give those affected by changes in, for example, Social Security or health care benefits, time to adjust.

In considering what fiscal adjustments to make, policymakers need to be presented with more complete information on the costs of the government’s existing long-term commitments. The budget’s current structure and reporting mechanisms have not focused attention on such commitments, nor has the budget process facilitated their explicit consideration. Financial statements are beginning to provide some of this information. Options to change budget reporting and process to improve recognition of these commitments and prompt early action to address potential problems warrant further exploration.

Policy Action Contributes to Improved Fiscal Outlook

In recent years, the federal deficit has declined substantially from \$290 billion in fiscal year 1992—4.7 percent of GDP—to a CBO projected level of \$23 billion in fiscal year 1997—0.3 percent of GDP, which would be the lowest level since 1974. This improvement is due, in part, to deficit reduction initiatives enacted in 1990 and 1993 as well as to subsequent

spending restraint.⁷ The Balanced Budget Act of 1997, coupled with the strong recent performance of the economy,⁸ is expected to extend this recent progress by achieving a balanced budget in 2002 followed by several years of budget surpluses on a unified budget basis.⁹ The decline in the deficit has significantly slowed growth in the federal debt held by the public. As a share of GDP, this commonly used measure of federal debt is projected by CBO to decline from about 50 percent in fiscal year 1993 to 30 percent in 2007.

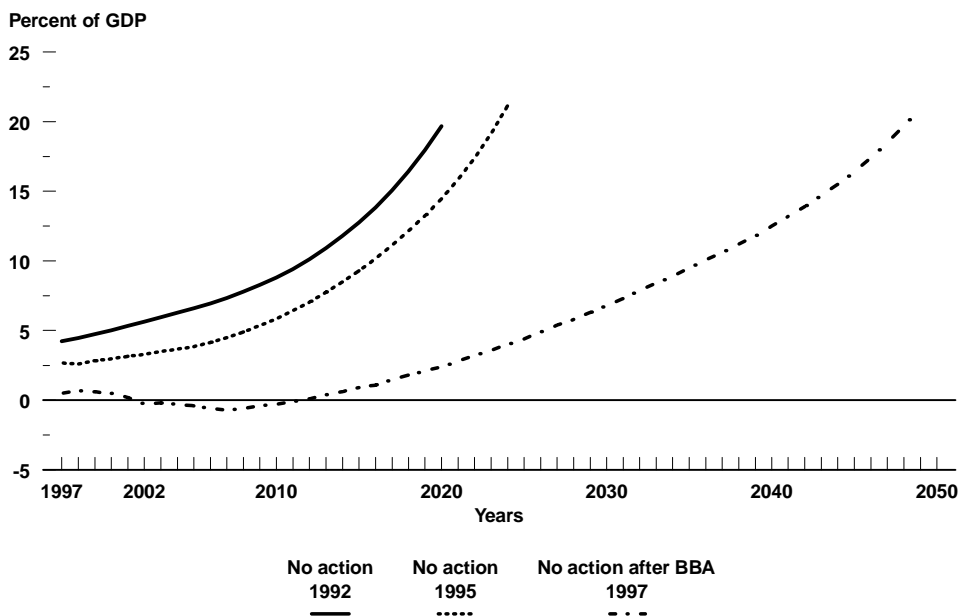
The improving fiscal outlook over the near term carries longer term benefits as well, as illustrated by comparing our current “no action” simulation with our 1992 and 1995 modeling results. (See figure 2.) Our initial modeling work in 1992 indicated that even in the short term, prospective deficits would fuel a rapidly rising debt burden. Intervening economic and policy developments led to some improvement by the time we issued our 1995 report, as shown by a modest shift outward of the “no action” deficit path. Nonetheless, both our 1992 and 1995 “no action” simulations indicated that deficits would have reached 20 percent of GDP in the 2020s. In contrast, the 1997 “no action” path—which follows CBO’s 10-year forecast—indicates small and shrinking deficits over the next few years, followed by a decade of surpluses. Following the enactment of the BBA in 1997, our simulation indicates that deficits would not reach the 20-percent level until nearly 2050. For purposes of comparison, the highest deficit level reached since World War II was 6.1 percent of GDP in 1983. Figure 3 illustrates the improvement in the long-term outlook for the federal debt as a share of GDP stemming from recent policy actions and economic developments.

⁷Recent legislation attempting to control the deficit included the Omnibus Budget Reconciliation Act of 1990, the Budget Enforcement Act of 1990, and the Omnibus Budget Reconciliation Act of 1993.

⁸Policy action accounted for about 25 percent of the recent improvement in CBO’s budget estimates. The remainder of the improvement was due primarily to economic factors.

⁹The unified budget includes annual Social Security trust fund surpluses. These surpluses are expected to be temporary, peaking at \$140 billion (including interest) in 2009 before declining and eventually turning to deficits in the following decade. For additional information, see *Federal Debt and Interest Costs*, CBO, May 1993, and *Federal Debt: Answers to Frequently Asked Questions* (GAO/AIMD-97-12, November 27, 1996).

Figure 2: Deficit Paths Under GAO's Past and Present "No Action" Simulations

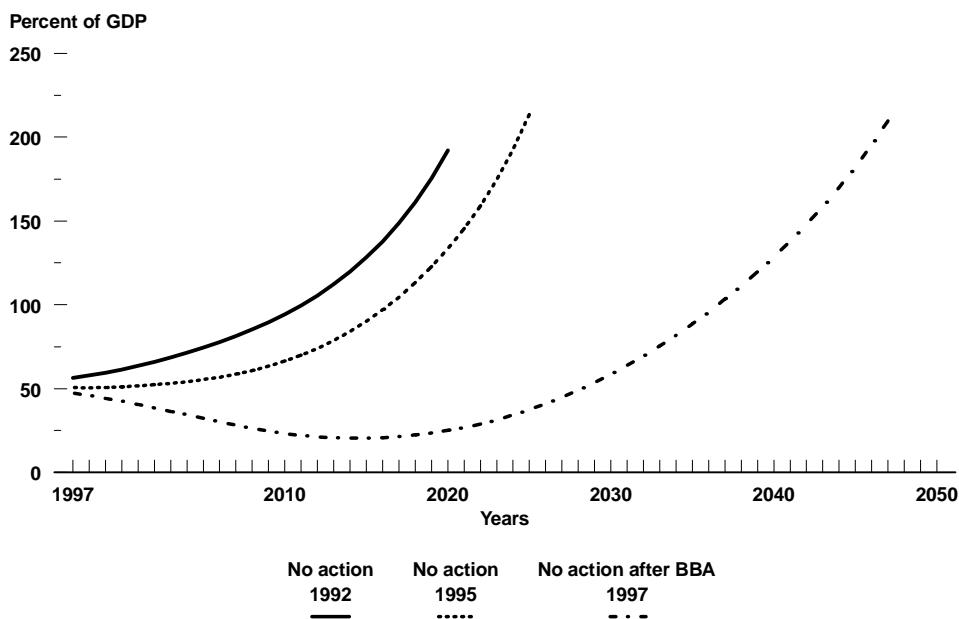


Long-Term Implications of Current Fiscal Policy Path

These recent fiscal improvements represent substantial progress in the near term toward a more sustainable fiscal policy. However, longer term problems remain. As in our earlier work, a “no action” policy remains unsustainable over the long term. (See figure 2.) While the federal budget would be in surplus in the first decade of the 21st century, deficits would reemerge in 2012, soon after the baby boom generation begins to retire. These deficits would then escalate, exceeding 6 percent of GDP before 2030 and exceeding 20 percent of GDP by 2050.

A comparison of federal debt to the size of the economy tells a similar story—near-term improvement followed by potentially unsustainable growth as the baby boomers retire. (See figure 3.) In the early years of the simulation period, budget surpluses produce a substantial reduction in the absolute size of the debt as well as in the relationship of debt to GDP, from today’s level of around 50 percent to about 20 percent in 2015. However, at that point, the debt to GDP ratio begins to rise rapidly, returning to today’s levels in the late 2020s and growing to more than 200 percent by 2050.

Figure 3: Debt-to-GDP Ratios Under GAO's Past and Present "No Action" Simulations



Such levels of deficits and debt imply a substantial reduction in national saving, private investment, and the capital stock. Given our labor force and productivity growth assumptions, GDP would inevitably begin to decline. These negative effects of rapidly increasing deficits and debt on the economy would force action at some point before the end of the simulation period. Policymakers would likely act before facing probable consequences such as rising inflation, higher interest rates, and the unwillingness of foreign investors to invest in a weakening American economy. Therefore, as we have noted in our past work, the “no action” simulation is not a prediction of what will happen in the future. Rather, it underscores the need for additional action in the future to address the nation’s long-term fiscal challenges.

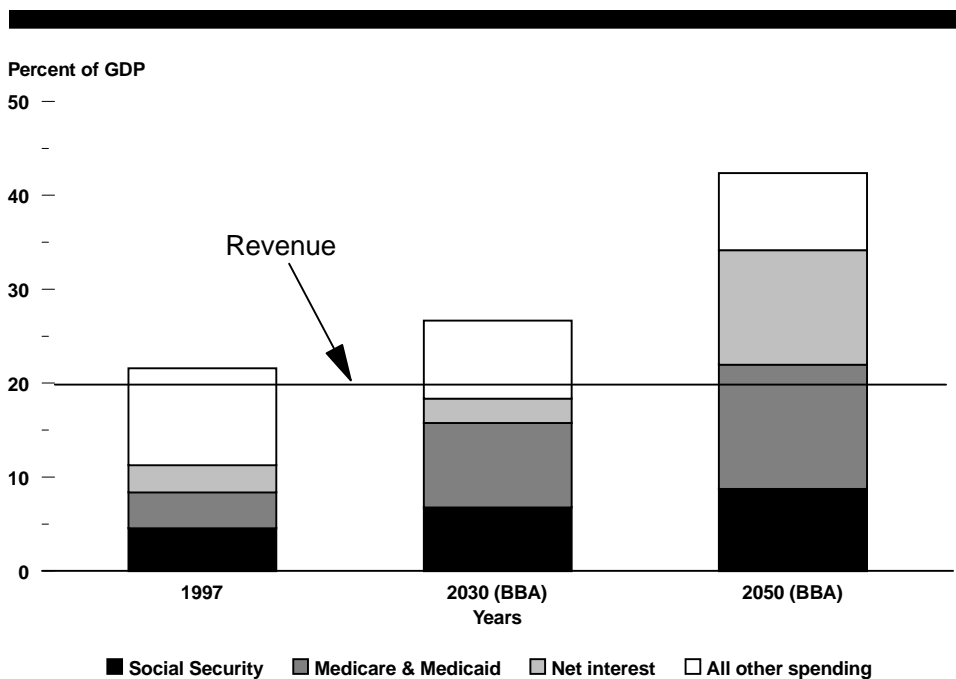
The primary causes of the large deficits in the “no action” simulation are (1) the aging of the U.S. population, which corresponds to slower growth in the labor force and faster growth in entitlement program spending, and (2) the rising costs of providing federal health care benefits. In 2008, the first baby boomers will be eligible for early retirement benefits. As this relatively large generation retires, labor force growth is expected to slow

considerably and, eventually, stop altogether. These demographic changes mean fewer workers to support each retiree. Between 1997 and 2025, the number of workers per Social Security beneficiary is projected to drop by 33 percent. Without a major increase in productivity, low labor force growth will inevitably lead to slower growth in the economy and in federal revenue. As slow growth in the labor force constrains revenue growth, the large retired population will place major expenditure demands on Social Security, Medicare, and Medicaid. In just 15 years, the Social Security trustees estimate that the program's tax revenue is expected to be insufficient to cover current benefits. While the recent Balanced Budget Act included some actions to restrain growth in Medicare spending and increase income from beneficiary premiums, the program is still expected to grow faster than the economy over the next several years. According to CBO estimates, the Hospital Insurance Trust Fund portion of Medicare will be depleted in 2007, even before retiring baby boomers begin to swell the ranks of Medicare beneficiaries.¹⁰ Medicaid spending will also be under increasing pressure as the population ages because a large share of program spending goes to cover nursing home care.

In the "no action" simulation, Social Security spending as a share of GDP increases by nearly 50 percent between now and 2030. By 2050, it approaches twice today's level. Health care spending, fueled by both an increased number of beneficiaries and (in the early years of the simulation period) rising per beneficiary costs, would grow even more rapidly—doubling as a share of GDP by 2030 and tripling by 2050. As Social Security and health spending rise, their share of federal spending grows tremendously. (See figure 4.) By the mid-2040s, spending for these programs alone would consume more than 100 percent of federal revenues.

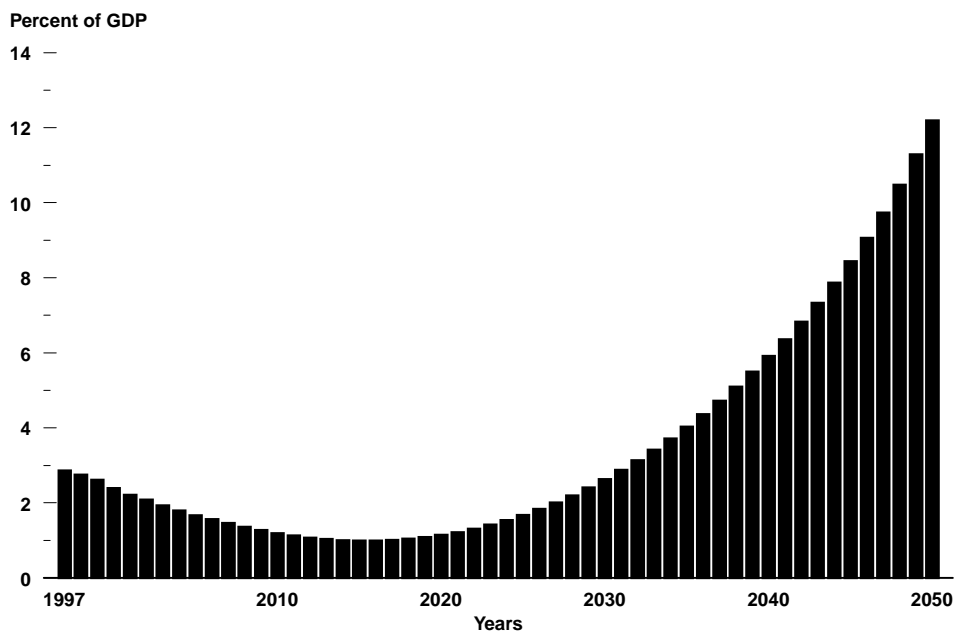
¹⁰Congress and the President have recognized the need for further changes in Medicare by establishing a National Bipartisan Commission on the Future of Medicare as part of the BBA.

Figure 4: Long-Term Change in Composition of Spending as a Percentage of GDP Under “No Action” Simulation



After initially declining, interest spending also increases significantly in the “no action” simulation. In the early years of the simulation period, budget surpluses reduce the burden of interest spending on the economy. However, when the surpluses give way to deficits, this decline is reversed. Growing deficits add substantially to the national debt. Rising debt, in turn, raises spending on interest, which compounds the deficit problem, resulting in a vicious circle. The effects of compound interest are clearly visible in figure 5, as interest spending rises from about 3 percent of GDP in 1997 to over 12 percent in 2050.

Figure 5: Net Interest as a Percentage of GDP Under “No Action” Simulation



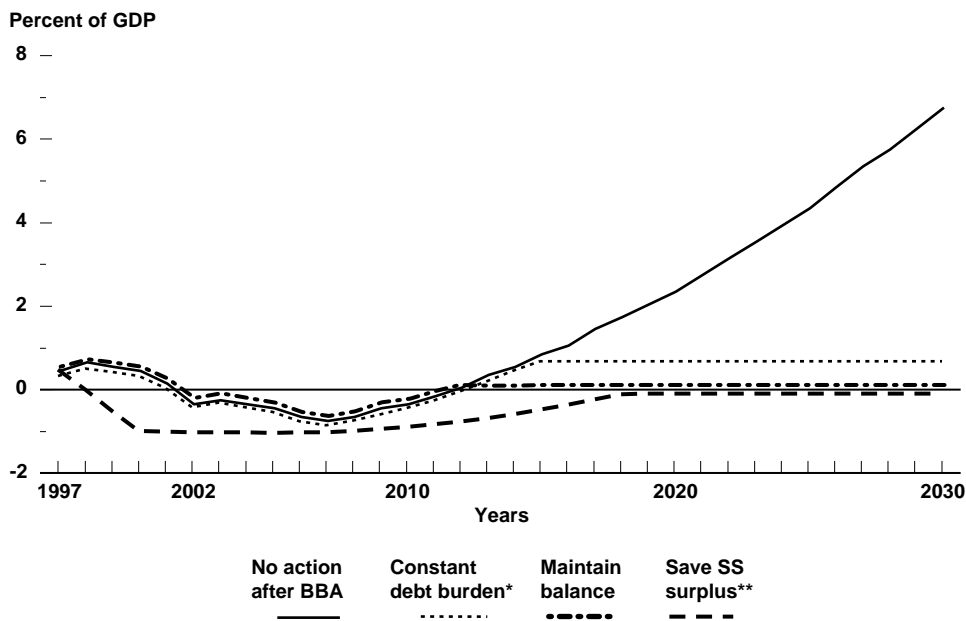
Alternative Fiscal Policies Would Change Long-Term Economic Outcomes

Alternatives to a “no action” policy illustrate the fiscal and economic benefits associated with maintaining a sustainable course. According to one definition, under a sustainable fiscal policy, existing government programs can be maintained without a continual rise in the debt as a share of GDP.¹¹ Under an unsustainable policy, such as “no action,” the debt continually rises as a share of GDP. As illustrated in our past reports and CBO’s work,¹² a number of different policy paths could be sustained over the long term. In our current work, we tested three different long-term fiscal strategies, one that would allow for modest deficits, one that would maintain a balanced budget, and one that would include an extended period of surpluses. (See figure 6.)

¹¹For a detailed analysis of sustainability, see Olivier Blanchard, Jean-Claude Chouraqui, Robert P. Hagemann, and Nicola Sartor, “The Sustainability of Fiscal Policy: New Answers to an Old Question,” *OECD Economic Studies*, no. 15 (Autumn 1990). See also The Canadian Institute of Chartered Accountants, *Indicators of Government Financial Condition*, April 1997.

¹²Congressional Budget Office, *Long-Term Budgetary Pressures and Policy Options*, March 1997.

Figure 6: Alternate Deficit/Surplus Paths



Note: Overlapping lines enhanced for clarity. As discussed in the text, these lines represent identical paths.

*Debt-GDP ratio is maintained at lowest level reached in “no action.”

**Social Security surpluses (including interest) are saved from 2000-2018, then balance is maintained.

The “constant debt burden” simulation follows the “no action” path through 2015. From this point on, the debt is held constant as a share of GDP, rather than increasing as in the “no action” simulation.¹³ To prevent the debt burden from rising from its 2015 level of about 20 percent of GDP, the federal government would have to hold annual deficits to roughly 1 percent of GDP. While not insignificant, this deficit level is relatively small compared to the federal deficits of recent years or to deficits in other industrial nations. For example, the European Union has established a deficit target of 3 percent of GDP for countries participating in the common currency arrangement.

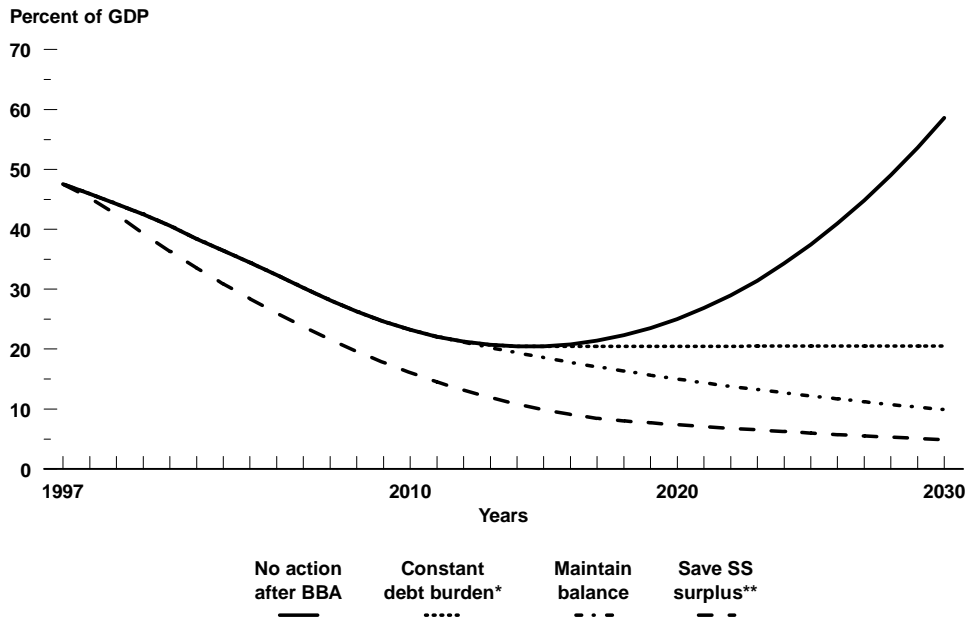
¹³Prior to 2016, the debt declines as a share of the economy due to the improved fiscal outlook for the near term.

The “maintain balance” simulation also follows the “no action” path for the early part of the simulation period. In 2012—the year that deficits reemerge under “no action”—a balanced unified budget would be achieved. Balance would then be sustained through the remainder of the simulation period.

Going beyond balance by running larger budget surpluses for a longer period of time than in the other simulations would yield additional economic benefits by further raising saving and investment levels. For our “surplus” simulation, we chose as a goal ensuring that annual Social Security surpluses (including interest that is credited to the fund) add to national saving. To achieve this goal, the federal government would run unified budget surpluses equal in size to the annual Social Security surpluses—which the Social Security Trustees estimate will peak at \$140 billion in 2009. Such a policy means that the rest of the federal government’s budget would be in balance. Social Security’s surpluses (including interest income) are projected to end in 2018. Beginning in 2019, our simulation follows a unified budget balance identical to the path in our balance simulation.

Figure 7 shows the debt-to-GDP paths associated with the various simulations. Under the “constant debt burden” simulation, the debt-GDP ratio remains around 20 percent, which is the lowest point reached in “no action.” Under both the “balance” and “surplus” simulations, the debt-GDP measure would decline to less than 10 percent of GDP—levels that the United States has not experienced since before World War I.

Figure 7: Debt-to-GDP Ratios Under GAO's Four Fiscal Policy Simulations



*Debt-GDP ratio is maintained at lowest level reached in "no action."

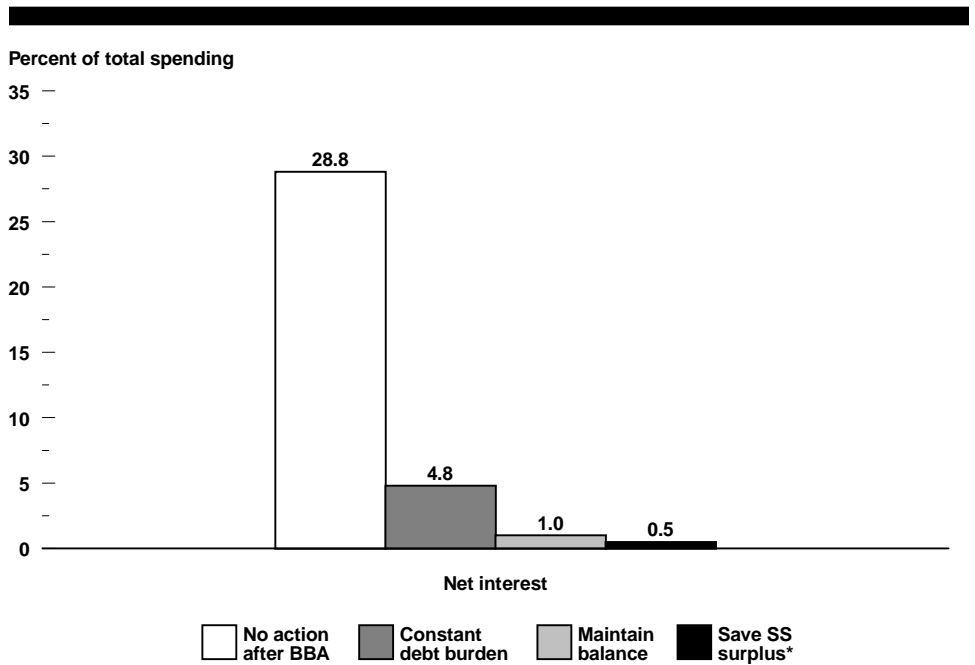
**Social Security surpluses (including interest) are saved from 2000-2018, then balance is maintained.

Each of the alternative simulations would require some combination of policy or program changes that reduce spending and/or increase revenues. We make no assumptions about the mix of those changes in our analysis. We recognize that such actions would not be taken without difficulty. They would require difficult choices resulting in a greater share of national income devoted to saving. While consumption would be reduced in the short term, it would be increased over the long term. Early action would permit changes to be phased in and so give those affected by changes in, for example, Social Security or health care benefits, time to adjust.

For both the federal government and the economy, any of the three alternative simulations indicates a vast improvement over the "no action" path. Sharply reduced interest costs provide the most striking budgetary benefit from following a sustainable policy. Currently, interest spending represents about 15 percent of federal spending, a relatively large share

that is a consequence of the deficits of the 1980s and early 1990s. As noted above, after shrinking in the early years of the “no action” simulation, interest costs increase sharply over the long term. In contrast, under the alternative simulations, the interest burden shrinks dramatically. (See figure 8.) By 2050, under either a balance or surplus policy, interest payments would represent 1 percent or less of total spending. Even under the less austere “constant debt burden” simulation, interest would account for only about 5 percent of spending.

Figure 8: Net Interest as a Share of Total Spending in 2050 Under GAO’s Four Fiscal Policy Simulations



*Interest spending equals less than 1 percent of total spending.

The economic benefits of a sustainable budget policy include increased saving and investment levels and faster economic growth, which results in higher living standards. For example, under any of our alternative simulations, per capita GDP would nearly double between 1996 and 2050. In contrast, under “no action,” growth in living standards would slow considerably and living standards themselves would actually begin to decline around 2040. By 2050, they would be nearly 40 percent lower than

under the balance simulation. This difference results from a wide gap in private investment. Under “no action,” large deficits eventually drive private investment spending down to zero while, for example, a balanced budget policy could produce a doubling of investment, as shown in table 1.¹⁴ In the “no action” simulation, capital depreciation would outweigh investment, resulting in a diminishing capital stock and, eventually, contributing to a falling GDP.

Table 1: The Economy and Fiscal Position in 1996 (Actual) and 2050 (Simulated)

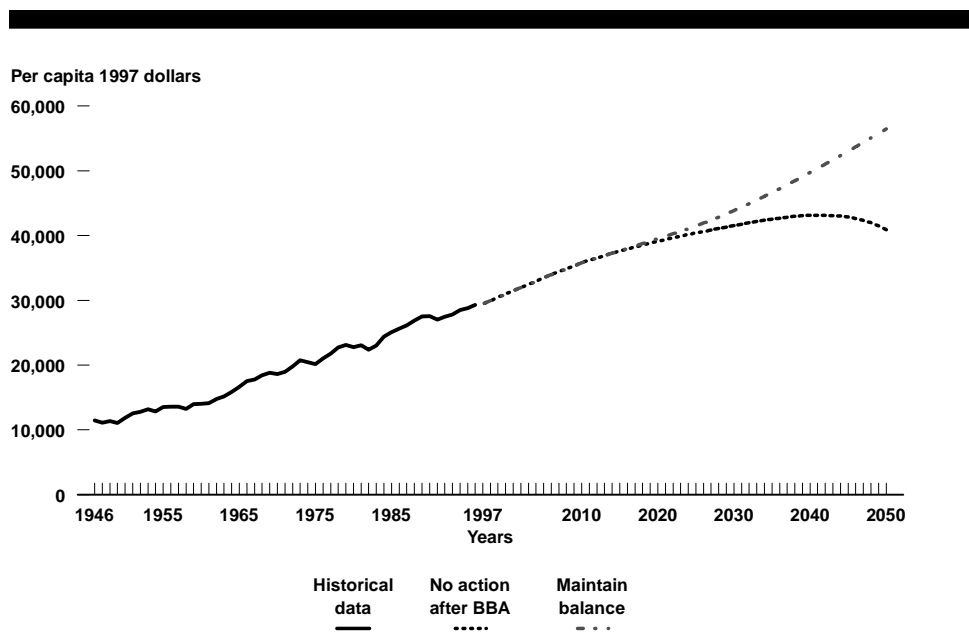
In per capita 1997 dollars				
	1996	2050— “No action”	2050— “Balance”	Percent difference between “no action” and “balance” in 2050
Real GDP	\$29,300	\$40,900	\$56,500	38%
Debt Held by the Public	\$14,500	\$107,100	\$2,400	-98%
Nonfarm business investment	\$3,000	\$0	\$6,700	N/A
Nonfarm capital stock	\$29,400	\$17,400	\$59,900	244%

Note: Based on Social Security Administration population projections.

Figure 9 compares the path of per capita GDP under “no action” to a balanced budget policy. This difference graphically shows the emerging gap in long-term living standards that results from shifting fiscal policy paths. Although the “maintain balance” path would lead to higher living standards, the rate of growth would be significantly lower than that experienced over the past 50 years. Such a rate would be extremely difficult to attain given the slowdown in productivity growth that has occurred in recent decades.

¹⁴Long-range simulations are quite sensitive to underlying assumptions and involve a large range of uncertainty. Hence, the amounts in table 1 should not be viewed as precise “point” estimates. Rather, they indicate the general magnitude of the differences that might result from different fiscal policy paths.

Figure 9: GDP per Capita Projected Under the “No Action” and “Balance” Simulations



Source: GAO analysis of 1946-1996 historical data, GAO’s GDP simulations, and Social Security Administration population projections.

Long-Term Commitments Not Adequately Reflected in Budget Reporting and Process

Long-term economic simulations are a useful tool for examining the balance between the government’s future obligations and expected resources. This longer term perspective is necessary to understand the fiscal and spending implications of key government programs and commitments extending over a longer time horizon.¹⁵

The future implications of current policy decisions reflected in our simulations and in other financial reports are generally not captured in the budget process. The budget is generally a short-term, cash-based spending plan focusing on the short- to medium-term cash implications of government obligations and fiscal decisions. Accordingly, it does not provide all of the information on the longer term cost implications stemming from the government’s commitments when they are made. While the sustainability of the government’s fiscal policy is driven primarily by future spending for social security and health care commitments, the federal government’s commitments and responsibilities extend far beyond these programs. These commitments may, themselves, result in large costs

¹⁵Budget Process: Evolution and Challenges (GAO/T-AIMD-96-129, July 11, 1996).

that can encumber future fiscal resources and unknowingly constrain the government's future financial flexibility to meet all its commitments as well as any unanticipated or emerging needs.

Information about the cost of some of these commitments will be increasingly available as agencies produce audited financial statements. We anticipate that they will provide additional information on long-term commitments, including such items as environmental cleanup and insurance. For example, in its 1996 financial statements, the Department of Energy reported a cost of \$229 billion to clean up its existing contaminated sites. The Department of Defense will also be developing and reporting cleanup costs in financial statements. The Office of Management and Budget has estimated that the government is likely to have to pay \$31 billion in future claims resulting from the federal government's insurance commitments. The first audited governmentwide financial statements will be issued for fiscal year 1997. This represents a key step in the government's efforts to improve financial management and provide greater transparency and accountability for the costs of government commitments and programs.

The key challenge facing budget decisionmakers is to integrate this information into the budget process. A range of options can be considered. A logical first step would be to include understandable supplemental financial information on the government's long-term commitments and responsibilities in the budget. For example, in a recent report we concluded that supplemental reporting of accrual-based costs of insurance programs would improve recognition of the government's commitments.¹⁶ Other options to refine the budget process or budget reporting to improve the focus on these commitments and prompt early action to address potential problems can be explored. For example, long-term simulations of current or proposed budget policies could be prepared periodically to help the Congress and the public assess the future consequences of current decisions. Another option, which would supplement the current practice of tracking budget authority and outlays, would be to provide information to permit tracking the estimated cost of all long-term commitments created each year in the budget.

¹⁶See *Budget Issues: Budgeting for Federal Insurance Programs* (GAO/AIMD-97-16, September 30, 1997).

Objectives, Scope and Methodology

In this report, the analysis of alternative fiscal policy paths relies in substantial part on an economic growth model that we adapted from a model developed by economists at the FRBNY. The model reflects the interrelationships between the budget and the economy over the long term and does not capture their interaction during short-term business cycles.

The main influence of budget policy on long-term economic performance is through the effect of the federal deficit on national saving. Conversely, the rate of economic growth helps determine the overall federal deficit or surplus through its effect on revenues and spending. Federal deficits reduce national saving while federal surpluses increase national saving. The level of saving affects investment and, in turn, GDP growth.

Budget assumptions in the model rely, to the extent practicable, upon the baseline projections in CBO's September 1997 report, The Economic and Budget Outlook: An Update, through 2006, the last year for which CBO projections are available in a format usable by our model. These estimates are used in conjunction with our model's simulated levels of GDP. For Medicare, we assumed growth consistent with CBO's projections and the Health Care Financing Administration's long-term intermediate projections from the Medicare Trustees' April 1997 report. For Medicaid through 2006, we similarly assumed growth consistent with CBO's budget projections. For 2007 and thereafter, we used estimates of Medicaid growth from CBO's March 1997 report, Long-Term Budgetary Pressures and Policy Options. For Social Security, we used the April 1997 intermediate projections from the Social Security Trustees throughout the simulation period. Other mandatory spending is held constant as a percentage of GDP after 2006. Discretionary spending and revenues are held constant as a share of GDP after 2006. Our interest rate assumptions are based on CBO through 2006 and then move to a fixed rate. (See appendix I for a more detailed description of the model and the assumptions we used.)

We conducted our work from September to October 1997 in accordance with generally accepted government auditing standards. We received comments from experts in fiscal and economic policy on a draft of this report and have incorporated them as appropriate.

We are sending copies of this report to the Ranking Minority Members of your Committees, interested congressional committees, the Director of the Congressional Budget Office, and the Director of the Office of Management and Budget. We will make copies available to others upon

request. The major contributors to this report are listed in appendix II. If you have any questions concerning this report, please call me at (202) 512-9573.

A handwritten signature in black ink that reads "Paul L. Posner". The signature is written in a cursive style with a large, prominent 'P' and 'L'.

Paul L. Posner
Director, Budget Issues

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Abbreviations

CBO	Congressional Budget Office
FRBNY	Federal Reserve Bank of New York
GDP	gross domestic product
HCFA	Health Care Financing Administration
NIPA	National Income and Product Account
OASDI	Old Age Survivors' and Disability Insurance
BBA	Balanced Budget Act of 1997

The Economic Model and Assumptions

This update of GAO's work¹ on the long-term economic and budget outlook relies in large part on a model of economic growth developed by economists at the Federal Reserve Bank of New York (FRBNY). The major determinants of economic growth in the model include changes in the labor force, capital formation, and the growth in total factor productivity. To analyze the long-term effects of fiscal policy, we modified the FRBNY's model to include a set of relationships that describe the federal budget and its links to the economy. The simulations generated using the model provide qualitative illustrations, not quantitative forecasts, of the budget or economic outcomes associated with alternative policy paths. The model depicts the links between the budget and the economy over the long term, and does not reflect their interrelationships during short-term business cycles.

The main influence of budget policy on long-term economic performance in the model is through the effect of the federal deficit or surplus on national saving. Higher federal deficits reduce national saving while lower deficits or surpluses increase national saving. The level of saving affects investment and, hence, gross domestic product (GDP) growth.

GDP is determined by the labor force, capital stock, and total factor productivity.² GDP in turn influences nonfederal saving, which consists of the saving of the private sector and state and local government surpluses or deficits. Through its effects on federal revenues and spending, GDP also helps determine the federal budget deficit or surplus. Nonfederal and federal saving together constitute national saving, which influences private investment and the next period's capital stock. Capital combines with labor and total factor productivity to determine GDP in the next period and the process continues.

There are also important links between national saving and investment and the international sector. In an open economy such as the United States, a decrease in saving due to, for example, an increase in the federal budget deficit, does not require an equivalent decrease in investment. Instead, part of the saving shortfall may be filled by foreign capital inflows. A portion of the net income that results from such investments flows abroad. In this update, we retained the assumption in our prior work that

¹Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy (GAO/OCG-92-2, June 5, 1992) and The Deficit and The Economy: An Update of Long-Term Simulations (GAO/AIMD/OCE-95-119, April 26, 1995).

²Total factor productivity reflects sources of growth not captured in aggregate labor and capital measures, including technological change, labor quality improvements, and the reallocation of resources to more productive uses.

net foreign capital inflows rise by one-third of any decrease in the national saving rate.

Table I.1 lists the key assumptions incorporated in the model. The assumptions used tend to provide conservative estimates of the benefit of reducing deficits or running surpluses and of the harm of increasing deficits. The interest rate on the national debt is held constant, for example, even when deficits climb and the national saving rate plummets. Under such conditions, the more likely result would be a rise in the rate of interest and a more rapid increase in federal interest payments than our results display. Another conservative assumption is that the rate of total factor productivity growth is unaffected by the amount of investment. Productivity is assumed to advance 1 percent each year even if investment collapses. Such assumptions suggest that changes in deficits or surpluses could have greater effects than our results suggest.

Appendix I
The Economic Model and Assumptions

Table I.1: Key Assumptions

Model inputs	Assumptions
Saving rate: gross saving of the private sector and state and local government sector	17.5% of GDP
Labor: growth in hours worked	Follows the Social Security Trustees' Alternative II projections
Total factor productivity growth	1%
Inflation rate	Follows CBO through 2007; 2.7% thereafter
Interest rate (average on the national debt)	Average effective rate implied by CBO's interest payment projections through 2006; 5.1% thereafter (CBO's 2006 implied rate)
Surplus/deficit	Follows CBO's budget surplus/deficit as a percentage of GAO's GDP through 2006; GAO simulations thereafter
Discretionary spending	CBO through 2006; increases at the rate of economic growth thereafter
Medicare	CBO through 2006; increases at HCFA's projected rate thereafter
Medicaid	CBO's projections
OASDI	Follows the Social Security Trustees' Alternative II projections
Other mandatory spending	CBO's assumed levels through 2006; increases at the rate of economic growth thereafter
Receipts	CBO's assumed levels through 2006; in subsequent years, receipts equal 19.9% of GDP (2006 ratio)

Note: In our work, all CBO budget projections were converted from a fiscal year to a calendar year basis. The last year of CBO's projection period is fiscal year 2007, permitting the calculation of calendar year values through 2006.

We have made several modifications to the model, but the model's essential structure remains the same as in our previous work. We have incorporated the change in the definition of government saving in the National Income and Product Accounts (NIPA) adopted in late 1995 by adding a set of relationships determining government investment, capital stock, and the consumption of fixed capital.

The more recent data prompted several parameter changes. For example, the long-term inflation rate is now assumed to be 2.7 percent, down from 3.4 percent in our 1995 report and 4.0 percent in our 1992 report. In this update, the average federal borrowing rate steadily declines to 5.1 percent, compared to our assumption of 7.2 percent in 1995 and 7.8 percent in 1992.

Our work also incorporates the marked improvement in the budget outlook stemming from the Balanced Budget Act of 1997 reflected in the 10-year budget projections that CBO published in September 1997.

The distinction between the mandatory and discretionary components of the budget remains important. We adopted CBO's assumption from their most recent 10-year forecast that discretionary spending equals the statutory caps from fiscal years 1998 through 2002 and increases at the rate of inflation from fiscal years 2003 through 2007. We assumed it would keep pace with GDP growth thereafter.

Mandatory spending includes Health (Medicare and Medicaid), Old Age Survivors' and Disability Insurance (OASDI, or Social Security), and a residual category covering other mandatory spending. Medicare reflects CBO's assumptions through 2006 and increases at HCFA's projected rate in subsequent years. Medicaid is based on CBO's September 1997 assumptions; thereafter, it increases at the rates embodied in CBO's March 1997 report on the long-term budget outlook. OASDI reflects the April 1997 Social Security Trustees' Alternative II projections.

Other mandatory spending is a residual category consisting of all nonhealth, non-Social Security mandatory spending. It equals CBO's NIPA projection for Transfers, Grants, and Subsidies less Health, OASDI, and other discretionary spending. Through 2006, CBO assumptions are the main determinant of other mandatory spending, after which its growth is linked to that of GDP.

The interest rates for 1997 through 2006 are consistent with the average effective rate implied by CBO's interest payment projections. We assume that the average rate remains at the 2006 rate of 5.1 percent for the rest of the simulation period.

Receipts follow CBO's dollar projections through 2006. Thereafter, they continue at 19.9 percent of GAO's simulated GDP, which is the rate projected for 2006.

As these assumptions differ somewhat from those used in our earlier reports, only general comparisons of the results can be made.

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