Preventing a National Debt Explosion

Martin Feldstein

SUMMARY

The projected path of the U.S. national debt is the major challenge facing American economic policy. Without changes in tax and spending rules, the national debt will rise from 62 percent of GDP now to more than 100 percent of GDP by the end of the decade and nearly twice that level within 25 years.

Allowing the national debt to remain on that trajectory would pose serious risks for the economy and for our national security. This paper discusses those risks and then presents three strategies that, taken together, could reverse this trend and reduce the ratio of debt to GDP to less than 50 percent.

The first strategy, labeled "stop digging," which focuses on the current decade, would reduce the Administration's proposed spending increases and tax reductions that would otherwise add $3.8 trillion to the national debt in 2020.

The second strategy deals with the long-term costs of the Social Security, Medicare and Medicaid programs. The real problem is not the future cost of these programs but the consequences of paying for them through taxation, since the projected increase of per capita GDP means that spending on everything else could rise very substantially even if there were no reduction in the projected costs of these programs. Augmenting the tax financed benefits with investment based accounts would permit the higher future spending on health care and pensions with a relatively small increase in saving for such accounts.

The third strategy focuses on "tax expenditures," the special features of the tax law that reduce revenue in order to achieve effects that might otherwise be done by explicit outlays. Most federal government non-defense spending, other than Social Security, Medicare and Medicaid, is now done through tax expenditures rather than by direct cash outlays. These tax expenditures include deductions, credits and exclusions that now result in an annual total revenue loss of about $1 trillion or more than 6 percent of GDP. Changes in such tax rules could permanently reduce future deficits without increasing marginal tax rates or reducing the rewards for saving, investment, and risk taking.

Although the task of reducing the projected deficits is politically challenging, the historic record is actually encouraging. The paper concludes with a discussion of how the high debt to GDP ratio after World War II was reversed and how the last four presidents 1
ended their terms with small primary deficits or primary budget surpluses.

Preventing a National Debt Explosion

Martin Feldstein[1]

The United States now faces two unprecedented fiscal problems: an exploding long term deficit driven by the promised pension and health care benefits for older Americans and a nearer term debt increase driven by a persistent projected gap between spending and revenue in the current decade. Failure to address these two problems could substantially weaken the U.S. economy and threaten our national security. The longer we wait to take remedial action, the harder it will be to limit those future deficits.

Several near term actions could prevent the debt explosion without raising tax rates or enacting new taxes that could themselves do substantial damage to the economy.

This paper explores the economic consequences of three strategies that together could reduce future budget deficits and stabilize the ratio of national debt to GDP at the current level (62 percent) or bring it back to its historic ratio of about 40 percent or less.[2] Here, very briefly are the three strategies that will be examined in this paper:[3]

(1) Stop digging. There is a saying that if you are in a deep hole and want to get out, the first step is to stop digging. In the current context, this paper will explore the implications of revising the budget proposals that President Obama submitted in February 2010. Doing so could prevent very large budget deficits during the remainder of the decade.

(2) Mixed Financing. Shifting the financing of Social Security, Medicare and the long-term care component of Medicaid from pure tax finance (the way that these programs are currently financed) to a mixture of tax finance and individual investment based accounts could prevent the projected explosion of deficits or tax rates without reducing projected retirement income or health benefits for older Americans.[4]

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[1] Professor of Economics, Harvard University. This paper was prepared for the NBER conference on Tax Policy and the Economy in Washington, DC on September 23, 2010. I am grateful to Mark Shepard for assistance with this paper and to Jeffrey Brown and Jeffrey Liebman for comments on an earlier draft.

[2] In keeping with the NBER tradition, these are presented as options and not as proposals. The current paper should not be interpreted as making specific policy recommendations.

[3] For an extensive analysis of many individual changes in spending and taxes that could reduce future deficits, see CBO (2009).

[4] I discussed this approach to reforming Social Security and Medicare in Feldstein (2005a)

(3) Tax Expenditures. It is possible to reduce de facto government spending and simultaneously raise revenue by eliminating or reducing government spending that is now done through the tax code. Government spending through tax expenditures is now much larger than the non-defense discretionary spending done through ordinary budget outlays. Tax expenditures could be reduced enough to avoid any increase from the tax rates of 2010 or even to reduce rates further. A similar trade-off of lowering rates and eliminating tax expenditures was important in the Tax Reform Act of 1986.

This paper begins with a brief summary of the fiscal outlook and a reminder of the risks that it entails for the U.S. economy and for our national security. The first section also discusses very briefly the potential economic consequences of some proposals for tax increases that have been suggested to reduce fiscal deficits.

Section two then discusses the "stop digging" strategy of eliminating or reducing some of the proposals in the Obama administration's February 2010 budget that would otherwise increase the multiyear fiscal deficit. To avoid the debate about using those policies to stimulate the weak economy, the analysis focuses on the period beginning in 2013, after which the administration and the CBO forecast that the economy will have returned closer to a full employment condition (CBO 2010e).

The third section discusses the use of a mixed financing strategy -- combining existing pay-as-you-go taxes and individual investment based accounts -- to finance not only future Social Security benefits but also the cost of Medicare. The analysis extends earlier work on Social Security with Andrew Samwick (Feldstein and Samwick, 1998, 2001) to develop estimates of the contributions to a Health Retirement Account that would be needed to avoid any increase in the 3.6 percent of GDP in taxes that is used to finance Medicare.

Section four explains how reducing tax expenditures could make a major contribution to shrinking future deficits without raising tax rates. It emphasizes that this strategy could appeal to Republicans who want to see reductions in government spending and to Democrats who want to see increased revenue as part of any overall deficit reduction plan. These tax expenditures are primarily equivalent to program spending on transfer payments to individuals that would otherwise be in the budget as part of non-defense outlays. Other tax expenditures are subsidies to businesses. The Reagan-O'Neill bipartisan agreement that led to the Tax Reform Act of 1986 cut tax expenditures by more than three percent of GDP.

The fifth section provides additional background information on how the deficits and national debt have behaved since 1980, looking first at how the large fiscal deficits in the Reagan administration were reduced and then examining the behavior of the national debt under subsequent administrations. A striking fact is that the Reagan and George H.W. Bush presidencies ended with cyclically-adjusted primary deficits of just 0.2 percent of potential GDP. The Clinton presidency ended with a corresponding surplus of 3.4 percent of potential GDP. The presidency of George W. Bush ended with a cyclically adjusted primary deficit of 1.4 percent of potential GDP in the economic crisis of 2008 but had a surplus of 0.5 percent of potential GDP in 2007 before the crisis began.

An appendix discusses the reduction of the national debt after World War II from 109 percent of GDP in 1946 to 46 percent of GDP in 1960 by an equal combination of higher real GDP and a higher price level. Key to that reduction in the relative size of the debt was the policy of not allowing any sustained increase in the nominal debt, in effect an application of the idea of not digging when you are already in a deep hole.

There is also a brief concluding section.

1. The Risks that We Face

According to recent estimates by the Congressional Budget Office (June 2010), the ratio of federal government debt to GDP is likely to rise from 62 percent in 2010 to 87 percent in 2020. These CBO estimates are based on what they describe as their "Alternative Fiscal Scenario," an estimate of the effect of the current law and the legislative changes that they believe are likely to be enacted between now and 2020. These assumptions are similar to their March 2010 estimates for the President's Budget (CBO, 2010b) in which they concluded that the debt in 2020 under the President's policies would be 90 percent of GDP and the deficit in that year would be 5.6 percent of GDP. While longer term projections are inherently difficult, the CBO projects a debt to GDP ratio in 2035 of 185 percent. These estimates are consistent with private estimates by experts like Auerbach and Gale (2010).

Unless policies are changed, these CBO estimates are likely to understate future deficits and debt because the calculations assume that the unprecedented debt levels would not have a significant impact on the interest rates on government debt. The CBO's calculations assume that the net interest would be 4.4 percent of the outstanding debt in 2020 and 4.7 percent in 2025 despite the rise in the debt from 87 percent of GDP to 185 percent of GDP.[5] If the real interest rate were

[5] The CBO's calculations assume that the real interest rate on government debt in the long run will be 2.7 percent, despite the extreme borrowing needs.

just 1 percent higher, the direct impact would be to raise the deficit by nearly 1 percent of GDP in 2020 and nearly 2 percent of GDP in 2035. These larger deficits would lead to even higher debt ratios along the path to 2035.

But even if we assume "only" the debt to GDP ratios projected by the CBO, the risks to our nation's future would be enormous. There are four types of such risks.

Reduced capital accumulation. The most obvious risk is the effect of government borrowing on capital accumulation and growth. The nation's private saving is now about 7.5 percent of GDP, with about 4.5 percent of GDP coming from households and unincorporated businesses and about 3 percent of GDP coming from corporations. State and local governments typically have approximately balanced budgets, since the state constitutions require states to balance their annual operating budgets.[6] If the federal government has a deficit of between 5 percent and 6 percent of GDP, the federal borrowing would absorb almost all of the private sector saving. The implication would be a national saving rate of less than two percent of GDP.

Net business investment in plant and equipment to keep up with a growing labor force and new residential construction for a rising number of households would therefore depend on a substantial inflow of funds from abroad. The capital inflow from the rest of the world is equal to our current account deficit, the sum of our trade deficit and the net balance on investment income and unilateral transfers. The current account deficit is now about three percent of GDP, down from a high of six percent in 2006. Limiting our total net investment to this combination of national saving (2 percent of GDP) and capital inflow (3 percent of GDP) would imply a substantial reduction in growth and in the creation of new housing.

There is moreover the risk that the current volume of foreign lending to the U.S. and foreign investment in the United States will not continue to be available. China, the largest source of capital inflow to the United States, is trying to reduce its trade and current account surpluses, in part to satisfy pressure from the United States. In addition, all of the countries that now have large current account surpluses -- including China, the oil producing nations, and others -- are also likely to want to diversity their investments away from heavy dependence on the United States and the dollar.

The result is likely to be lower investment in the United States and higher interest rates. Those higher interest rates will increase the fiscal deficits even further. The lower rate of investment will mean slower growth of real incomes and therefore lower tax collections, further compounding the fiscal problem.

[6] Since future pension obligations are not counted as part of current operating budgets, some states have reduced current salary outlays by agreeing to larger future pensions.

The economic burden of debt service. The fiscal deficits are now projected to increase year after year in future decades with no limit in both real terms and as a share of GDP. But even if the fiscal deficits were brought to an end after 25 years with the CBO's projected debt of 185 percent of GDP, servicing that debt would have a substantial negative effect on the U.S. economy through the burden of higher tax rates and the need to transfer resources to foreign owners of the national debt.

If the increase in the size of the debt raises the average nominal interest rate in 2035 on U.S. government debt to 6 percent[7], the government's annual interest bill would be about 11 percent of GDP, up from 1.4 percent of GDP in 2010. That would be on top of the 26 percent of GDP non-interest outlays in 2035 projected by the CBO (2010c).

If the government's goal in 2035 is to stabilize the size of the debt, it would have to collect taxes equal to 11 percent of GDP just to pay the interest bill in addition to the 26 percent of GDP needed to pay for the projected non-interest spending. The combined federal government tax bill would be 37 percent of GDP, about double what taxes have averaged over the past several decades.

Since personal and corporate income taxes together have averaged about 11 percent of GDP, those tax revenues would have to be doubled just to pay the interest bill. Since higher tax rates would cause taxpayers to take actions that reduce the size of the tax base, the future tax rates would have to more than double.

Stabilizing the size of the national debt in 2035 would therefore be an unrealistic goal if the debt were allowed to get to 185 percent of GDP by that date. A somewhat easier goal to meet in 2035 would be to stabilize the real value of the debt by allowing the nominal debt to increase at the rate of inflation. In effect, the government would pay only the real interest on the debt and borrow the rest. If inflation is two percent and the real interest rate is then 4 percent, the interest bill that would have to be financed by taxes would be 7.4 percent of GDP. Because higher tax rates cause the tax base to shrink, the personal and corporate tax rates that now bring in revenue of about 11 percent of GDP would have to rise by between 70 percent and 100 percent to bring in that extra revenue.[8] While it is possible to imagine raising the 15 percent rate to 25 percent or even the 28 percent rate to

[7] The CBO estimates interest cost in 2035 of "only" 8.7 percent, an implausibly low implicit interest rate of 4.7 percent, almost the same implicit rate as the 4.4 percent projected for 2020 when the debt to GDP ratio is projected to be 87 percent of GDP. See footnote 5 above.

[8] Estimates using the NBER TAXSIM model imply that an across the board rise in all income tax rates would raise revenue by only about two-thirds of the "static" estimate.

48 percent, it would not be possible to raise the 35 percent corporate tax rate to 60 percent or the top personal rate of nearly 40 percent to almost 70 percent without losing more revenue from behavioral responses than would be gained by the higher rates. So raising revenue to finance such an enormous debt would require shifting more of the debt burden to lower income taxpayers. And that would be on top of the tax increase needed to finance the non-interest spending.

A yet more "modest" goal would be to stabilize the ratio of debt to GDP after 2035, allowing the debt to rise with nominal GDP at 4 percent a year. Even if taxes were raised to finance the 26 percent of GDP non-interest spending, the annual net interest burden that would remain to be financed would imply raising personal and corporate tax rates by be 4.0 percent of GDP.[9] Even that 4.0 percent of GDP would imply raising the existing personal and corporate income tax rates that now produce revenue of 11 percent of GDP by between 36 percent and 50 percent, depending on the size of the taxpayer reaction to higher tax rates. With an across the board tax increase, the current 25 percent rate would go to about 35 percent while the 40 percent rate would go to at least 55 percent. Further increases would of course be needed to pay the increase in non-interest spending.

The higher tax rates would be not only a direct burden on all future taxpayers but also the source of a substantial increase in the deadweight burden of the tax system. Defenders of budget deficits once argued that the national debt imposed no burden because "we only owe it to ourselves." That ignored the reduction in the GDP that results because government borrowing crowds out productive business investment. It also ignored the loss of real incomes implied by the deadweight loss of the increased marginal tax rates.

But in addition to those two conceptual errors there is now the fact that nearly half of the national debt is owned by foreign investors. That fraction is almost sure to rise substantially over the next 25 years because of the high ratio of annual budget deficits to U.S. domestic saving. But even with 50 percent held by foreign investors, there are two further costs of a large national debt: the transfer of resources and the adverse change in the terms of trade.

First, if we allow foreigners to lend to the US to permit fiscal deficits and reduced national saving, we will have to reduce our future consumption and transfer future U.S.-produced goods and services to the foreign investors. If the national debt in 2035 is 185 percent of GDP, the foreign holding of U.S. government debt would

[9] This assumes a nominal interest rate of 6 percent and a nominal GDP growth rate of 4 percent, as projected for the long term by the CBO. With a nominal growth rate of 4 percent and a stable debt to GDP ratio of 1.85, the allowable deficit would be 7.4 percent of GDP. An interest rate of 6 percent on the national debt of 1.85 times GDP would imply an interest bill of 11.1 percent of GDP. Reducing that to the allowable 7.4 percent of GDP would leave an interest deficit of 3.7 percent of GDP.

then be at least 100 percent of US GDP and the interest payment on that debt would be six percent of US GDP. Paying that interest on that debt means transferring abroad six percent of US GDP in the form of goods and services in excess of the amount that Americans export to pay for the goods and services imported from abroad.[10]

One possible alternative would be to pay the real interest on that foreign-owned debt, borrowing enough to stabilize the real value of the debt. This would imply a transfer of four percent of GDP. If part of the interest bill were financed by borrowing from foreign investors in this way, the effect would be to lower the 2035 transfer of goods and services to the rest of the world but to increase the amount to be transferred in future years.

This direct resource transfer is just part of the cost of financing our foreign debt. To induce foreign households and businesses to buy the American made goods and services, the price of those products to foreign buyers must be lower than it would otherwise be. This deterioration of our terms of trade means that we get less from the rest of the world for the products that we send them.

More specifically, if the accumulation of foreign debt means that we have to increase our net exports in 2035 and beyond by 4 percent of GDP, a rough calculation suggests that the dollar must decline on a real trade weighted basis by about 40 percent. That means that the US would give up 40 percent more of US product for every unit of goods that we import from the rest of the world. With imports now at about 15 percent of GDP, this would mean a fall in our real standard of living of an additional 6 percent of GDP.

A potential financial crisis. A gradual reduction in the inflow of capital and the resulting rise in U.S. interest rates would be a serious problem but need not be a crisis. But a "sudden stop," i.e., a very rapid reduction in the willingness of foreigners and even of Americans to lend to the U.S. government or other U.S. borrowers, could precipitate a financial crisis (CBO 2010d; Reinhart and Rogoff, 2009.)

The most likely reason for such a sudden end to credit flows to the U.S. would be a fear of some form of default by the U.S. government. Foreign investors now

[10] The obligation of the United States to foreign investors is of course more than the government debt. Foreign investors buy private securities and investment in businesses and other real property in the United States while Americans invest in foreign assets. The inflow from abroad equals the current account deficit. A growing government deficit means less U.S. national saving and therefore more capital inflow from the rest of the world, only some of which takes the form of purchases of government debt. In 2009 the foreign purchases of Treasury debt totaled $617 billion, exceeding the US current account deficit of $378 billion during that period.

own nearly 50 percent of the U.S. government debt that is not held in U.S. government accounts, up from the 34 percent of the corresponding share of debt that they owned in 2000. The rise in government debt from 62 percent of the current GDP to 87 percent of the GDP in 2020 implies a $10 trillion increase in the total debt. While it is not clear how much of that $10 billion of additional debt would be bought by foreign investors, it is almost certain to increase their share of the U.S. government obligations.

With foreign investors holding nearly half of U.S. government debt now and an even larger share in the future, they might well worry whether the U.S. would try to reduce that debt in a way that burdens foreign holders but not Americans or even that burdens all holders but thereby relieves the future debt service burden on American taxpayers. Such an action need not be an outright default but could be a plan to substitute low interest very long-dated securities when bonds become due and to pay interest with such obligations rather than with cash. Or they might worry that the U.S. could decide to withhold tax on the interest on bonds, crediting those taxes against obligations of U.S. taxpayers but leaving foreign debt holders with a lower net yield. The recent events in Europe and the resulting financial market expectations of a possible default (or rescheduling) by Greece and other eurozone members probably increase investors' subjective probability of a US default at some time in the future.

The usual reason why governments are reluctant to default in any way is the concern that they will be unable to borrow again in international capital markets. But the experience with Latin American and Asian defaults in the past three decades shows that the market's memory is short and defaulters are soon able to borrow again.

This is not to suggest that the U.S. government will actually contemplate such action. But it is only necessary for potential foreign investors to worry enough about such action for it to lead to a sharp fall in credit availability and an increase in interest rates.

Reduced National Security. Defense Secretary Robert Gates recently spoke of the risk that large fiscal deficits will lead politically to reductions in defense spending: "My greatest fear is that in economic tough times people will see the defense budget as the place to solve the nation's deficit problems, the place to find money for other parts of the government." (Wall Street Journal, August 10, 2010). A similar view was expressed by Admiral Mike Mullen, Chairman of the Joint Chiefs of Staff, in June when he said "our national debt is our biggest national security threat." (Huffington Post, June 24) To limit Congressional and Administration cuts in defense spending, Secretary Gates took the initiative to cut spending programs and to cancel the Joint Forces Command.

Although it is difficult to determine the optimal size of the military budget, it is clear that the U.S. now faces a more complex set of adversaries than we did in the past. Although we have relatively cordial relations with both Russia and China, we are aware that both countries have large nuclear arsenals that could be a threat in the future. The U.S. also faces threats from rogue states like North Korea and Iran and from a variety of terrorist groups. The defense budget has nevertheless declined from 9 percent of GDP under President Kennedy to 3.5 percent in the decade through 2009. President Obama's budget calls for annual defense spending to decline by $50 billion and to remain below four percent of GDP.

The size of the military budget and the nature of our military capability affects our ability to deter hostile acts. In addition, the safety of shipping on the seas, including the transportation of oil and other critical products, depends on the U.S. navy. The cooperation of our allies and others around the world reflects their belief that they can count on the U.S. support in times of trouble.

Potential allies look ahead in judging our future military capability and our willingness to assist them when they need it. Their willingness to cooperate with us now depends on their perceptions of our future willingness to maintain global military capability. Potential adversaries also look ahead when deciding on their own strategies relative to the United States and to our allies.

Cyberterrorism poses a major new threat to U.S. national security. Foreign powers, including both nations and individuals, can attack the infrastructure of the United States. A small number of sophisticated computer hackers could disable such key facilities as the electricity grid, a city's water supply, and the air traffic system. Similarly, cyber terrorists could shut down corporate control systems and destroy financial records. The full range of potential dangers is unknown and the ability to prevent such cyberterrorism is just being developed. The government's recent creation of a new military command (the Cybercommand) in parallel to the traditional military commands reflects the significance of this potential threat.

Against the background of these four risks, I will consider the three basic options that I indicated above. Explicitly omitted from this list is the proposal to raise additional taxes on the "super rich" (i.e., a millionaire surcharge on incomes over $1 million) and the proposal to introduce a value added tax. Before turning to the three options that I develop in detail, I comment briefly on these ideas for raising taxes.

A millionaire tax surcharge

In 2007, the latest year for which full tax data are available[11] and the year before taxable income was distorted by the recession that began in December 2007, there were 391,000 taxpayers with adjusted gross incomes over $1 million. Their total taxable income was $1,245 billion of which about $391 billion is less than $1 million per taxpayer. The surcharge would therefore apply to $854 billion. A 10 percent surcharge would produce a "static" revenue increase of $85 billion or about 0.5 percent of GDP.

Under the proposed tax rates in the administration's 2011 budget, the marginal tax rate of these taxpayers will be 40 percent or more, depending on the taxpayer's state and city of residence. A further 10 percent rise in the tax on incomes over $1 million would reduce the net of tax share that the taxpayer keeps from 60 percent to 50 percent, a 16.7 percent decline. Assuming an uncompensated elasticity of taxable income to the net of tax rate of 0.4, taxable income would decline by 6.7 percent, a fall of $83 billion from $1245 billion to $1162 billion. The revenue loss on this reduced taxable income would all be at the enlarged 50 percent marginal rate, reducing the $85 billion static revenue gain to just $44 billion or about 0.3 percent of GDP.

The increase in the standard deadweight loss caused by this tax increase can be approximated as 0.5 * E * (.25 - .16) (taxable income) / (1-.4) where .25 is the square of the final marginal tax rate, .16 is the square of the initial marginal tax rate, E is the compensated elasticity of taxable income with respect to the net of tax rate, and the term (1-.4) in the denominator reflects the modification of the basic deadweight loss formula when dealing with an increase from an initial positive marginal tax rate of 0.4. If E is 0.5, this implies an increased deadweight loss of 0.0375 times taxable income or $47 billion. This traditional measure of deadweight loss excludes any long-term effects that would work through changes in saving, risk taking, and entrepreneurship.

In short, a ten percentage point millionaire surcharge would produce only $44 billion of extra revenue and would cause a deadweight loss of more than $47 billion or one dollar of pure waste for every extra dollar that is transferred from the millionaires to the Treasury. A smaller surcharge of three percentage points would produce a "static" revenue estimate of only 0.15 percent of GDP and actual revenue of less than 0.1 percent of GDP.

A Value Added Tax

Adding a value added tax to the existing income and payroll taxes is frequently proposed as a way of dealing with the future budget deficits. A value added tax is

[11] The figures discussed in this paragraph are from the IRS publication "Statistics of Income, 2010"

in effect equivalent to a national sales tax on all consumer spending. Since consumer spending is 70 percent of GDP, a comprehensive value added tax with a 10 percent rate could in principle raise 7 percent of GDP. Because of the difficulty of taxing the imputed income of owner-occupied housing and the reluctance of governments to tax necessities like medical care, the revenue of a 10 percent VAT would be less than 7 percent of GDP. In addition, the increased cost of living caused by such a value added tax would lead to increased government outlays in programs like Social Security that are designed to maintain standards of living. Foreign experience with value added taxes indicate that there is also substantial tax evasion, implying even less net revenue.
The economic advantage of a value added tax relative to our traditional income tax is that, as a tax on consumption, it does not distort the timing of consumption between spending early in life and later in life in the way that a tax on interest income or a comprehensive income tax does. It also avoids the many distortions that would come from increasing the corporate income tax.[12]

But a value added tax does increase the effective tax rate on additional earnings in much the same way as an income tax. Since individuals work in order to buy goods and services, the consumption tax distorts the choice between consumption and leisure, inducing individuals to work less, in the same way as our current income tax does. It also provides an incentive to substitute forms of compensation that are not considered to be taxable consumption (e.g., fringe benefits of all kinds). And it induces more work in the underground economy (illegal) and more "home production" (legal but inefficient). In this paper I will not consider the VAT option further.

I turn therefore to the three options mentioned above.

2. "Stop Digging"

The rise in the national debt that is projected to occur during the remainder of the current decade reflects the tax and spending policies enacted by previous administrations and by the Obama administration as well as the substantial loss of revenue and increase in transfer payments that result from the very deep recession that began in December 2007.

But the projected doubling of the national debt between 2010 and 2020 also reflects to a great extent the legislation proposed in President Obama's Budget for Fiscal Year 2011. The Congressional Budget Office (2010b) estimates that

[12] For a recent discussion of the distorting effects of the corporate income tax, see President's Economic Recovery Advisory Board (2010)

those proposals would, if enacted, raise the projected 10 year deficit by $3.8 trillion or more than 60 percent of the baseline ten year deficit through 2020. It would also raise the projected national debt in 2020 to 90 percent of GDP, up from the current 62 percent of GDP. Without that $3.8 trillion rise in the national debt, the national debt would be 73 percent of GDP. Thus 60 percent of the projected rise in the national debt from the current GDP share to the 90 percent projected in 2020 is due to new proposals contained in the Obama 2011 budget proposals.

The $3.8 trillion increase in the national debt reflects a combination of $5 trillion of deficit increases (from both increased spending and lower tax payments by middle and lower income taxpayers) offset in part by $1.3 trillion of tax increases, primarily on taxpayers with incomes over $250,000.

Although there is a rationale for every aspect of that $5 trillion, eliminating that $5 trillion of incremental deficits would cut the 2020 national debt by nearly 25 percent of GDP, from the 90 percent of GDP projected for that year by the Congressional Budget Office to 68 percent of GDP. That would bring it close to the 62 percent of GDP projected for the end of 2010. It would also reduce the government's 2020 projected interest bill of $916 billion dollars by more than $200 billion, thereby slicing more than a trillion dollars from the 2025 national debt.

Before looking at some of the details of the $3.8 trillion of increased net deficits that President Obama's budget proposals would add to the national debt during the next decade, I should make four clarifying points:

First, the fiscal deficit of $1.4 trillion in 2009 included $471 billion of accounting charges for the expected present value of the future losses of Fannie Mae, Freddy Mac and the Troubled Asset Relief Program (TARP).[13] These accounting charges did not actually represent current spending and would not occur after 2009. Because of this form of accounting recognition, actual future losses would not add to the deficit in the years when they occur. Excluding these one-time accounting losses in order to focus on the real current deficit would reduce the 2009 deficit by 33 percent.

Second, the CBO's projections of the President's budget are required to treat the proposed legislation literally even if experts would not regard those proposals as

[13] When the government transferred Fannie Mae and Freddie Mac to government "conservator" status, the CBO required adding the present actuarial value of anticipated *future* losses of the existing portfolios of these organizations to the current year's deficit. That was estimated to be $291 billion. The CBO also required recording a similar allowance for anticipated losses in the Troubled Asset Relief Program (TARP), estimated by the CBO at that time to be $180 billion.

legislatively plausible. It is significant therefore that the CBO's more recent Long Term Budget Outlook (CBO 2010c) reaches a very similar fiscal deficit in 2020 when it uses its best judgments to predict what it calls its "Alternative FIscal Scenario."[14]

Third, the current high level of unemployment and fragile overall economic outlook raise the question of whether it would be advisable to tighten fiscal policy before 2013. The end of the 2009 fiscal stimulus package (the American Recovery and Reinvestment Act of 2009) and of the specific targeted fiscal stimulus plans (the Cash for Clunkers and the First Time Home Buyer's tax credit) imply a rapid withdrawal of the fiscal stimulus between 2010 and 2012. Postponing the "stop digging" strategy by delaying any changes in the President's proposals until after 2012 would increase the decade's fiscal deficits by $751 billion or one-fifth of the full deficits projected for the period through 2020 (CBO 2010b). But even with this postponement, the "stop digging" strategy would reduce the budget deficit during the coming decade by more than $3 trillion. That would cut in half the rise in the projected deficit from the current 62 percent to 77 percent rather than 90 percent of GDP.

Fourth, the CBO's analysis of the President's budget proposals almost certainly underestimates the amount of discretionary government spending (i.e, spending that requires Congressional appropriation in contrast to the so-called "mandatory" spending like Social Security benefits that continues unless there is Congressional action to change the benefits) that will occur during the next decade. The level of non-defense discretionary spending is projected to rise only five percent in nominal terms between 2010 and 2020, not enough to keep up with the rise of the price level, and allowing no room for new discretionary programs or expansion of existing programs or even for spending to increase with population.[15] The annual level of defense spending is projected to decline relative to the baseline of currently projected levels by about $50 billion in each year after 2012, a very optimistic view of US military needs in the decade ahead.

The increases in "mandatory" spending (relative to the baseline budget that reflects current law) in the President's budget add $1.85 trillion to the national debt between 2010 and 2020.[16] Because these are mandatory spending programs, they represent changes in spending rules that will continue to add to

[14] With the Alternative Fiscal Scenario, the national debt in 2020 is predicted to be 87 percent of GDP, very close to the 90 percent projected based on a literal interpretation of the President's budget.
[15] One reason for the lack of nominal growth of the projected nondefense discretionary outlays is that the discretionary portion of Pell education grants would be shifted to mandatory spending, taking $177 billion from discretionary spending over the decade. Even if that were included in domestic discretionary spending, the rise from 2010 to 2020 in nominal outlays would still be only one percent a year, implying a decline in real outlays.
[16] This amount and the detailed components are from CBO (2010b).

deficits in future years as well. More than 85 percent of this increased spending is projected to occur after 2012.

The largest component of the increased spending is the cost of expanding health coverage (the "Obamacare" package) totaling $593 billion with more than 100 percent of this occurring after 2013 (because of some projected spending reductions in the first few years). This large increase in health care outlays was packaged with large tax increases in the Obamacare legislation so that the combined legislation could be scored by the CBO as, in the President's words, "not adding a dime to the national debt." An additional health care part of the projected rise in budget outlays is the repeal of a scheduled reduction in physicians' Medicare fees at a total cost of $286 billion, of which only $39 billion occurs in the first three years. The total increased government outlays for health care is thus $879 billion.

The other major spending outlays with a total cost of $401 billion is a variety of transfers to lower income households. These result from expanding tax credits in excess of the households' tax liabilities and refunding the excess in cash, a form of spending that the CBO correctly classifies as outlays even though it is the result of a tax credit. These refundable credits include the earned income credit, the child credit, Making Work Pay (a transfer based on the first few thousand dollars of earnings), etc. Only $60 billion of the total occurs before 2013.

The final significant outlay change is an expansion of the means-tested Pell education grants. The Obama budget proposal shifts what is now a mixture of discretionary and mandatory components into a purely mandatory program, raising the mandatory outlays by $374 billion and reducing discretionary outlays by $177 billion. Putting all of the Pell grants in the mandatory category makes it more difficult to reduce this spending in the future since it would take a deliberate legislative act to cut the grants rather than just not continuing the existing program. It also causes the non-defense discretionary outlays to remain virtually unchanged in nominal terms during the decade (a cumulative deficit of only $10 billion.)

The revenue changes in the President's budget plan include $1.35 trillion of revenue increases and $2.8 trillion of tax reductions for a net revenue decline during the decade of $1.45 trillion.

The $1.35 trillion of increases in tax revenue do not include the automatic increases that result from the ending of the 2001 and 2003 tax reductions

(EGTRRA and JGTRRA) that occurs at the end of 2010.[17] The largest of the proposed revenue increases is the collection of tax increases specified in the administration's health bill and expected raise revenue by $743 billion over the period to 2020. Higher taxes on foreign source profits of U.S. corporations would raise $127 billion. A proposal to reduce the revenue cost of tax deductions by high income taxpayers by limiting the tax rate against which such deductions apply to 28 percent would raise an additional $289 billion.[18]

Almost all of the revenue loss comes from keeping the benefits of the 2001 and 2003 tax reductions for middle and lower income taxpayers. The scheduled increase in the 25 percent tax bracket (to 28 percent) and in the 28 percent rate to 31 percent are eliminated. The 33 percent rate rises to 36 percent only for taxpayers with incomes above $250,000. These modifications in tax rates involve a revenue loss of $1.2 trillion over the 10 years, only $166 billion of which happens before 2013. Modifying the marriage penalty reduces revenue by $306 billion. Additional revenue loss of $120 billion comes from keeping the $1,000 child tax credit and expanding the refundable portion. Indexing the AMT to reduce its potential application to middle class taxpayers adds $577 billion to the ten year deficit. The rationale for all of these changes, costing about $2.2 trillion, is redistribution rather than reductions in deadweight losses or macroeconomic stimulus.[19]

Some additional proposed changes are designed to improve the taxation of investment income with the aim of increasing investment and long-term growth. The tax rate on capital gains and dividends would be limited to 20 percent and the estate tax would be modified by increasing the exclusion and lowering the maximum tax rate. These modifications cost $491 billion over 10 years.

A case can be made for all of these tax reductions. But the advantages must be weighed against the $2.8 trillion of deficits that they create and the higher taxes that will be needed in the future to deal with the increased debt.

3. Mixed Financing of Social Security and Medicare

[17] That automatic end occurs because the original tax bills were passed using the "reconciliation" process that allowed passage with only 51 votes (avoiding the need for 60 votes to stop a filibuster) but subjecting the legislation to the Byrd rule that precludes using reconciliation to alter federal revenue for more than 10 years.

[18] There is also a proposal to substitute direct subsidies to state and local governments that issue taxable "Build America Bonds" for the revenue loss that results when those governments issue bonds that pay interest that is not subject to federal income taxes. The subsidy is set so that these bonds appeal to tax exempt investors like pension funds while denying tax free interest to individual investors in the highest tax brackets. The result is an outlay of $88 billion and reduced tax revenue of $80 billion.

[19] For a further discussion of this issue, see Feldstein (2010).

The "stop digging" strategy can significantly reduce the dramatic rise in debt that is projected to occur between now and 2020. But even if that were fully implemented, the fiscal deficits will continue to rise sharply in the years after 2020. The primary driver of those out-year deficits is the spending for Social Security, Medicare, and Medicaid. Taken together the cost of these programs is expected to rise from 8.4 percent of GDP in the most recent decade (followed by 10.3 percent of GDP in 2010, a year of depressed GDP) to 12.4 percent of GDP in 2020, 17.1 percent of GDP in 2035 and 26.4 percent of GDP in 2084, the last year of the CBO's 75 year analysis (CBO 2010c).

The 7 percent of GDP rise in this spending as a share of GDP between now and 2035 is equal to 70 percent of current total personal and corporate taxes as a share of GDP. Even if the payroll tax revenue is included, the total personal and corporate revenue would be about 18 percent of GDP, implying that the extra cost of these programs would require raising all tax rates by more than 50 percent.[20] The amounts in 2084 would have to be much larger.

This large financing gap can be closed without raising taxes only by slowing the growth of the government outlays for Social Security and for Medicare. But doing so need not mean reducing retiree incomes or the health care of older Americans if the current tax financed system is broadened to a mixture of the tax financed and investment based benefits. I consider first the possibility of doing so for Social Security and then turn to the more complex issue of Medicare.

Social Security

Social Security benefits are not means tested but are paid to individuals who reach retirement age under a formula that relates their benefit to their previous earnings. Under current law, Social Security benefits at the time of retirement automatically rise in a way that causes the benefits of a worker who has had average earnings all his life to equal about 40 percent of his immediate pre-retirement income. As real earnings in the economy rise through time, the benefits of the median earner rise in proportion. Individuals with higher lifetime earnings have lower replacement rates but the corresponding real benefits also rise as average real incomes rise.

Some analysts have suggested that preventing financial hardship in old age does not require a continually rising standard of living for all retirees of the type now provided by Social Security. But many others object to that view, noting that the principle of rising real benefits has been a feature of the Social Security program

[20] Substantially more than 50 percent because the higher tax rates would cause taxpayer actions that substantially shrink the tax base, requiring higher tax rates to collect the same amount of revenue.

since its beginning and that Social Security benefits for lower and middle income retirees are still quite low. The annual benefit in 2009 of a new retiree who has had median earnings all his life was only $17,800. While total program costs could be reduced somewhat by slowing the growth of benefits for those with much higher than average incomes, the amount that can realistically be saved in this way is quite limited. A new retiree in 2009 whose income in every year of his working life was at the maximum taxable level under Social Security ($106,800 in 2009) would receive an annual benefit of less than $28,000.

The rising retirement incomes implied by current law can be achieved in future years for all retirees without raising taxes if the existing tax financed benefits are supplemented by a system of universal investment based annuities. Andrew Samwick and I (Feldstein and Samwick, 1997, 2001) developed a specific plan to do that. While maintaining the existing benefit formula with the current tax financed program alone would require raising the payroll tax rate for Social Security from the current 12 percent to nearly 20 percent, the Feldstein-Samwick analysis showed that the same level of retirement income could be achieved in a mixed system by supplementing the 12 percent payroll tax with out-of-pocket contributions to personal retirement accounts of just 1.5 percent of the taxable payroll (an amount equivalent to just 0.6 percent of GDP.)

More specifically, the Feldstein-Samwick analysis showed how reduced growth of the pay-as-you-go benefits could be offset by the available annuity payments from the personal retirement accounts in such a way that the combination of the two remained as large as the currently projected pay-as-you-go benefits. The payroll tax would remain unchanged at the current 12.4 percent of wages and salaries.[21] This implies that the tax financed benefit would eventually be reduced to 60 percent of the benefit specified in current law. In each year, the gap between the financeable pay-as-you-go benefit and the benefit projected in current law would be filled by the annuity provided by the personal retirement account.

To achieve this, the funds accumulated in the personal retirement accounts are assumed in the Feldstein-Samwick analysis to be invested in a mixture of 60 percent equities and 40 percent debt that provides a real yield of 5.5 percent per year, less than the historic average for such a mixed portfolio. The accumulated fund is converted at age 67 into a variable annuity based on the same investment mix.

[21] The portion of the 12.4 percent tax that is now used to finance disability benefits would continue to be subtracted for this purpose.

In subsequent studies, I and others examined the rate of return risks associated with such mixed strategies and concluded that mixed plans could achieve the projected benefits with near certainty by an investment strategy that combines Treasury inflation protected securities and equities.(Campbell and Feldstein, 2001; Feldstein 2005b)

The key to achieving this mixed financing of retirement is to have all employees enrolled in personal retirement accounts. If that is done, subsequent legislation can respond to the shrinking of the Social Security trust fund by slowing the growth of future benefits. Although the majority of current workers do have employment based plans (401k and 403b plans) or IRAs, such coverage is not universal. The Obama administration has proposed legislation that would require any employer above a small minimum size that does not already offer an employment based saving plan to offer automatic enrollment in an individual retirement account.[22] Individuals would have the option of withdrawing their funds from these accounts but substantial corporate experience with automatic enrollment plans indicates that almost all employees continue to participate even if there is no employer subsidy.

Medicare and Medicaid

Although the aging of the population that raises the cost of Social Security also contributes to the higher cost of Medicare and Medicaid, the cost of the Medicare program rises much more rapidly than that of the Social Security pension program for two reasons. First, the average cost of Medicare benefits per beneficiary rises in every year with the age of the beneficiary. The average age of those over 65 is rising because of increased survival rates in that demographic group, driving up the costs per Medicare participant. Second, the cost of the Medicare benefits for participants at every age also rises faster than GDP, reflecting a combination of new medical technologies and increases in the cost of the existing methods of care.

The CBO's "alternative fiscal scenario" (CBO,2010d) projects that Medicare and the other "mandatory" health programs (primarily Medicaid) will go from 5.5 percent of GDP in 2010 to 7.2 percent in 2020, 10.9 of GDP in 2035 and 20.1 percent in 2084 at the end of the CBO's 75 year long-term forecast. According to the CBO calculations, under current law about 55 percent of the increased spending for the federal health programs by 2035 will be due to this faster growth

[22] For more details on how such legislation would work, see the Pew Trust Report Retirement Security -- Auto IRA and the legislative proposals in HR6099 and S3760. Rahm Emanuel, currently White House chief of staff and a former member of the Democratic leadership in the Congress, proposed universal accounts as a way of dealing with the long-term Social Security problem in a 2007 Wall Street Journal article.

of health costs relative to GDP and the remaining half to the aging of the population. This demographic factor (i.e., the relative aging of the Medicare population) causes costs to rise until 2035, after which the age structure is assumed to stabilize. The CBO's analysis also assumes that the "excess cost growth" (i.e., the faster growth of the health costs relative to the growth of GDP) will be 1.70 percent a year in 2020 and will then decline linearly to a 1.0 percent a year excess cost growth in 2084. As already noted, this implies that the cost of Medicare and Medicaid rises from 5.5 percent of GDP now to 10.9 percent in 2035 and 20.1 percent in 2084.

Much of the policy discussion about Medicare financing focuses on what can be done to reduce the rate of increase of Medicare costs, particularly to reduce the "excess cost growth". The 2010 health care legislation[23] created a high level federal committee (the Independent Payment Advisory Board) with the mandate to reduce future Medicare costs. The legislation also commits the administration to reduce Medicare spending relative to current projections by about $450 billion by 2019, an amount that is reflected in the CBO's cost "scoring" of the legislation.

There is of course no reason to pay for health care that is not effective or that costs more than an equally effective alternative treatment. Moreover, Medicare, like all other health insurance, increases the demand for health care and leads to inefficiently high levels of health care spending, i.e., spending at a level at which the cost of producing the marginal unit of care exceeds its value to the patient.

Nevertheless, bureaucratic controls on health spending do not provide a way of reflecting the variety of individual patient preferences about the tradeoffs between cost and risk.[24] While everyone wants good health, individuals differ in their willingness to adopt lifestyles that prolong expected life and reduce the risks of ill health. For the same reason, individuals with the same income differ in their willingness to spend for diagnosis and for treatments with uncertain benefits. An "engineering" approach to finding the "right" way to treat a patient with particular symptoms fails to recognize these important differences in preferences.

In a society with rising incomes there is also no reason why health care spending should not consume a rising share of incomes for a very long period of time. Even if Medicare costs rise at the rate projected by the CBO, the income remaining for everything else will still continue to rise rapidly.

To be specific, note that the CBO assumes that GDP will rise at 2.0 percent a year in the long run, consisting of 1.3 percent a year growth of real GDP per

[23] The Patient Protection and Affordable Care Act.

[24] For further discussion of this issue and a confession of why I changed my earlier views on the application of cost benefit analysis to health care, see Feldstein (1995).

capita and population growth of 0.7 percent a year (CBO, July 2010). This implies average per capita GDP will rise by some 163 percent over the next 75 years. If Medicare and related government health spending that now absorbs 5.5 percent of GDP is allowed to rise to 20.1 percent of GDP in 2084, the remaining GDP that is not absorbed by those federal health programs goes from 94.5 percent of GDP now to 79.9 percent of GDP in 2084. But with that future per capita GDP equal to 263 percent of today's per capita GDP, the 79.9 percent available for everything else would be equal to 211 percent of today's GDP. If the share of GDP for Medicare and related health programs were instead constrained to 5.5 percent of GDP, the per capita GDP available for everything else in 2084 would be 94.5 percent of 2.63 times today's GDP or 248 percent of today's GDP. Therefore, preventing *any increase at all* in the GDP share for government health programs would allow per capita income available for everything else to rise by 148 percent from today's level instead of by 111 percent. There is no reason to think that the future public would sacrifice the higher quality of health care in old age to have a 148 percent rise in other spending rather than a 111 percent rise.

In short, allowing Medicare and Medicaid outlays to rise at the full rate projected by the CBO still leaves an enormous rise in income for other purposes. With the possibilities that medical science is likely to offer to older persons during the coming decades, it is hard to argue that this is an unwise use of the future increase in incomes.

The problem therefore is not the rising future amount of health care spending on older Americans but the tax rate consequences of doing so through tax finance. Financing 20.1 percent of GDP rather than 5.5 percent through taxes would require an additional 14.6 percent of GDP in taxes. This would be on top of the taxes needed to pay for other spending and for interest on the national debt.

It is however not necessary to increase tax rates by a large amount if future Medicare costs (and the portion of Medicaid costs associated with long term care for those who were previously not poor) could be financed by supplementing the existing payroll tax revenue with personal health retirement accounts analogous to the personal retirement accounts described above to supplement traditional Social Security.

Consider how this might be applied to Medicare.[25] There are a variety of ways in which individual accounts could be used. The simplest would be for the government to require everyone to have such an account and use the funds at age 65 to fill the financing gap that results between the cost of Medicare and the amount that can be financed by taxation at the same 3.6 percent of GDP that exists today. More complex arrangements

[25] This could in principle be extended to the Medicaid programs for the aged but the data for doing so is not separately available.

would allow individuals to select different health plans at retirement age, with lower premiums associated with higher co-payments or with health maintenance organization type arrangements. Those lower premiums would accrue to the individuals who select them as additional cash pensions. Alternatively, the government could indicate that the tax financed health benefits for the aged would become less comprehensive or have substantial co-payments and encourage (rather than require) everyone to have a Personal Health Retirement Account in which funds accumulate tax free.

The Social Security analysis described above shows how a mixed system with individual accounts could be structured. For simplicity, the Medicare calculations that I have done for this paper assume a single government account, although I discuss in Feldstein (2000) the advantages of financing through individual accounts instead of a single common fund.

More specifically, under the option that I have analyzed, the government funds future Medicare by a combination of a 3.6 percent of GDP tax (the current tax share of GDP used for Medicare) and withdrawals from a Medicare Accumulation Fund. The fund pays out the difference between the cost of Medicare in each future year and the 3.6 percent of GDP tax revenue.

My calculations show that this can be done if the fund receives 3.0 percent of GDP each year from the population under age 65, starting in the current year. The fund is invested to earn a real return of 5.5 percent, a lower return than a portfolio of 60 percent equities and 40 percent high grade debt has produced over the past 50 years.[26]

These calculations use the CBO (2010d) assumptions about the evolution of Medicare costs. The CBO projects specific annual Medicare costs for the years 2010 through 2020 and then assumes rules for cost growth in later years. More specifically, the Medicare cost growth relative to GDP consists of a demographic component to reflect population aging until 2035 (after which there is no demographic addition) and an excess health cost component that grows at 1.7 percent in 2020 and decreases linearly until it reaches 1.0 percent in 2084.

The Medicare Accumulation Fund therefore evolves according to

$$(1) \quad A(t) = 1.055\, A(t-1) + 0.03 * GDP(t) - MC(t)* GDP(t) + 0.036\, GDP(t)$$

where the annual Medicare cost projections are those presented by the CBO for 2010 through 2020 and then evolve according to

[26] Because of the potential long-term risks of such a portfolio, alternative risk mitigation strategies should be explored along the lines discussed in Feldstein (2005b).

(2) $MC(t) = MC(t-1) * (1 + d(t)) (1 + c(t))$

where $1+ d(t)$ is the demographic feature equal to 1.03 percent from 2020 to 2035 and 1.0 after that while the excess cost growth factor is $c(t) = 0.017$ in 2020 and declines linearly to $c(t) = 0.010$ in 2084.

Explicit calculation shows that the resulting Medicare Accumulation Fund remains positive through 2084. That means that the full projected Medicare cost can be financed with a combination of the existing 3.6 percent of GDP tax and a new 3.0 percent of GDP saving deposit, a total of 6.6 percent of GDP, instead of having costs rise from 3.6 percent of GDP now to 7.0 percent in 2035 and 13.4 percent in 2084.

It would be useful to see whether this can be developed using individual accounts with each cohort having enough funds from the combination of the tax payments (3.6 percent of GDP) and the payouts available from their own account. It would also be instructive to see how this can be done with a gradual increase in the required saving rate rather than starting with the full 3 percent.

4. Reducing Tax Expenditures

Avoiding the rapid growth of the national debt between now and the end of the decade without raising tax rates requires reductions in government spending. But most federal non-defense spending, other than Social Security, Medicare and Medicaid, is now done through special tax rules rather than by direct cash outlays. While spending for non-defense discretionary programs through regular budget outlays cost 4.8 percent of GDP in 2010, the tax expenditures for the same purposes cost more than 6.8 percent of GDP. Significant reductions in federal domestic spending will therefore require Congressional action to limit tax expenditures.[27]

Tax expenditures are features of the tax code that reduce tax revenue in order to achieve effects that might otherwise be done by explicit outlays. Some examples will indicate the nature of tax expenditures.

The Child Credit The child credit pays $1,000 per child under 18 to taxpayers with incomes under $110,000 (and then phasing out above that). This transfer might alternatively be achieved as a direct payment from the government to couples with children under 18. The Joint Committee on Taxation estimates for 2008 (the most recent year for which disaggregated data are available) that 32

[27] The idea of tax expenditures was originally introduced by Surrey and McDaniel (1985).

million taxpayers claimed this credit with a total revenue loss of $48 billion of which half was refundable.

The Mortgage Deduction. Taxpayers who itemize their deductions (instead of claiming the standard deduction) may deduct payments for interest on mortgage balances that total up to $1 million on one or two homes. For 2008, the 37 million taxpayers who itemized mortgage interest expenses reduced their tax payments by $85 billion dollars.

The Health Insurance Exclusion. The largest of the tax expenditures is the subsidy for employer provided health insurance. Employer payments for the health insurance of employees is tax deductible by the employer just like any other form of compensation. But unlike cash compensation, employees do not have to pay tax on this benefit. In 2008, an estimated 176 million employees benefited from this tax expenditure that cost the Treasury $149 billion in lost income tax revenue.

As these examples show, tax expenditures may be credits (like the child credit), deductions (like the mortgage deduction), or exclusions from taxable income (like the exclusion of employer payments for health insurance). Exclusions have the additional cost to the Treasury of not being subject to the payroll tax used to finance Social Security and Medicare. The Treasury Department has estimated (Office of Management and Budget, 2010, p 213) that the lost payroll tax revenue associated with the health insurance was $97 billion in 2009, bringing the total lost revenue for the health insurance exclusion for the year 2009 to about $246 billion.

While all taxpayers are eligible to benefit from exclusion type benefits and from tax credits, only taxpayers who itemize their deductions benefit from deductions like the deduction for mortgage interest or local property taxes. In 2008, 33 percent of all taxpayers itemized their deductions.

Adding up the costs of all of the tax expenditures identified by the Office of Management and Budget for 2009 implies a total loss of income tax revenue (i.e., not counting the loss of payroll tax revenue) of about $1 trillion.[28] The three largest categories of personal tax expenditures were housing (revenue loss $185 billion), health ($168 billion revenue loss) and education and training ($108 billion), totaling $481 billion for 2009 alone. But there are more than one hundred other tax expenditures including a

[28] There is a problem with simply adding up all of the individual tax expenditures since some are mutually exclusive. For example, a taxpayer who takes one of the education credits may not take another. A careful analysis of the problem by Burman, Toder and Geissler (2008) found that this distorts the effect of eliminating all tax expenditures by less than 10 percent.

$500 million annual subsidy for the rehabilitation of historic houses and a $4 billion annual subsidy for employer paid transportation benefits.

The administration's 2011 budget proposed to limit tax deductions by high income taxpayers to the 28 percent tax rate, i.e., a taxpayer who takes a deduction for $1000 would only reduce his tax bill by $280 even if he is in a higher tax bracket. According to the CBO, (2010b) this would increase tax revenue relatively little, raising $289 billion over 10 years or less than 3 percent of the total tax expenditures over this period.[29]

Political Economy of Tax Expenditures

Tax expenditures change the political economy of income taxation in three ways. First, the use of tax expenditures of various types eliminates the income tax liabilities of millions of households that would otherwise pay income tax (Internal Revenue Service, 2010). In 2007 (the latest year for which there are such IRS data) there were 46 million tax filers who paid no income tax and received a refund of any taxes withheld during the year. Those individuals file only because they are required to file or in order to receive cash refunds. When a tax credit is refundable, the taxpayer receives cash from the Treasury equal to the value of their "refundable" tax credits to the extent that those credits exceed the individual's pre-credit tax liability. Exempting these individuals from paying any income tax is likely to reduce their political resistance to increases in tax rates on the rest of the population. This would not be the same if the individuals paid income taxes and received cash benefits.

The second political effect of using tax expenditures is that it converts domestic discretionary expenditures that would be subject to annual Congressional appropriation to features of the tax code that are likely to be permanent once passed unless Congress takes deliberate steps to change the tax code. That has the effect of making these spending decisions more permanent than they would otherwise be.

Third, the shift from outlays to tax expenditures distorts the description of the fiscal system. Tax revenue in 2009 was 14.8 percent of GDP and nondefense discretionary outlays were 4.1 percent of GDP. If the tax expenditures equal to 6.9 percent of GDP were more correctly classified as spending, the full size of the tax burden (before these tax expenditures) would be seen as 21.7 percent of

[29] This limit on the tax rate used for tax deductions would increase the net cost of charitable contributions from 60 cents per dollar of gift to 72 cents for individuals in the 40 percent marginal tax bracket. Because of the sensitivity of charitable giving to the net of tax cost, the administration's proposal would have the effect of reducing the amount received by the charitable organizations by the same as the amount of extra revenue collected by the Treasury. See Feldstein (2009)

GDP and the non-defense discretionary spending would be 11.0 percent of GDP. Raising both taxes and spending by equal amounts would not change the size of the deficit but it would show the much larger size of both taxes and spending than our current measurements indicate.

Although individual members of Congress have proposed eliminating or reducing certain tax expenditures, neither political party has focused on controlling this type of spending. Democrats are reluctant to cut programs that provide a form of spending that they favor and that do so in a way that does not require new annual authorizations but that stay on the books unless they are repealed. Income limits on the taxpayers who can benefit from these tax expenditures allows Congress to target these benefits to lower income groups. Moreover, many tax expenditures are refundable, causing the government to send a check to the individual if he owes no tax.

Many Republicans are reluctant to cut these tax perks because they regard the additional revenue that would be collected by the federal government as a "tax increase" even though the increased revenue is really the effect of a de facto spending cut. A Republican member of Congress who would vote to cut or eliminate an ordinary spending program may therefore be reluctant to do so if it is packaged as a tax benefit.

But eliminating tax expenditures does not increase marginal tax rates or reduce the reward for saving, investment, and risk-taking. Eliminating tax expenditures would also increase the efficiency of the overall tax system by removing incentives that distort private spending decisions. And eliminating some of the large number of overlapping tax-based subsidies would also greatly simplify tax filing.[30] In short, eliminating tax expenditures is not at all like other ways of raising revenue.

With more than $1 trillion a year of revenue loss due to tax expenditures, a substantial reduction in future deficits could be achieved even if many of the tax expenditures were retained and others reduced only partially (e.g., reducing the allowable deduction by 50 percent or limiting the exclusion of certain fringe benefits to 50 percent of the cost.) These changes could also be phased in gradually, e.g., by reducing the allowable deductibility or the exclusion by 10 percent in the first year, 20 percent in the second year, etc..

An important part of the Reagan tax reform of 1986 was a reduction of tax expenditures from more than 9 percent of GDP to 6 percent of GDP. These

[30] For extensive discussions of the tax simplification that would be achieved by eliminating or consolidating some of the large numbers of tax expenditures, see Commission on Tax Reform (2006) and President's Economic Recovery Advisory Board (2010).

included several tax expenditures that affected individual taxpayers as well as others that affected businesses. Those affecting individuals included changes in deductibility of various personal expenses (including nonbusiness state and local taxes and consumer credit interest) and various exclusions (including the exclusion of unemployment insurance benefits and certain employer pension contributions).[31]

The Treasury Department projects that the current tax expenditures of 6.8 percent of GDP will rise to 7.6 percent of GDP by 2015. Cutting that 7.6 percent to 5 percent would reduce the deficit in that year by 2.5 percent of GDP without any increase in tax rates. That reduction in tax expenditures beginning in 2015 would reduce the national debt in 2020 by more than 12 percent of GDP.

5. Lessons of the Past

Despite temporary deficit surges during the past three decades, the cyclically adjusted primary deficit (i.e., the deficit excluding net interest) in the last year of each presidency was just 1.4 percent of GDP or less. The largest of these was in 2008 when the economy was in sharp decline. If we stop the analysis with 2007, the cyclically adjusted primary balance in that year was a surplus of 0.5 percent of potential GDP. The Ronald Reagan and George H.W. Bush presidencies ended with cyclically adjusted primary deficits of just 0.2 percent of potential GDP while the last year of the Clinton presidency saw a primary surplus of 3.4 percent of potential GDP.

In contrast, the CBO estimates of the Obama administration's 2011 budget imply that the primary fiscal deficit would be 3.9 percent of GDP in 2012 and 1.6 percent of GDP in 2016 when the unemployment rate is predicted to be just 5.0 percent of GDP.

This section reviews the fiscal records of the four presidencies between 1980 and 2008 to understand how these administrations reduced fiscal deficits and achieved primary balance or surpluses. I use Congressional Budget Office data to analyze the changes in actual and cyclically adjusted deficits, decomposing these changes into movements of revenue and of the major components of spending.

An appendix analyzes the decline in the relative size of the budget deficits after World War II. The deficit fell from 109 percent of GDP in 1946 to 46 percent in 1960. This reflected a successful "stop digging" strategy that caused the nominal

[31] See Neubig and Joulfaian (1988) for a detailed analysis.

debt to be the same in 1960 as it was in 1946. The rise in real GDP and in the price level were then each responsible for equal reductions in the ratio of debt to nominal GDP.

Ronald Reagan.[32]

A deep recession brought about by Federal Reserve tightening caused the cyclical deficit to surge at the beginning of the Reagan presidency. The Reagan administration also increased the deficit by sharp reductions in tax rates and large increases in defense spending. Because personal income tax brackets had not yet been indexed to the price level and the inflation rate in 1980 was 12.5 percent, the Reagan administration assumed that the revenue loss associated with the1981 tax rate reductions would be largely offset by "bracket creep" as inflation pushed taxpayers into higher tax brackets. But when monetary tightening by the Fed succeeded in reducing inflation to 3.8 percent in 1982 and 1983, the reduced personal tax rates caused significant concurrent revenue declines.

All of this caused the national debt to rise from 25.7 percent of potential GDP at the end of 1980 to 41.1 percent at the end of 1988. As a result, the government's net interest bill rose from 1.9 percent of potential GDP in 1980 to 3.0 percent in 1988.[33] This was the largest source of the increase in the deficit between 1980 and 1988.

Table 1 summarizes the changes in the key components of the budget between fiscal year 1980 (the last full year before the Reagan presidency) and fiscal year 1988.[34] The first column shows actual changes as percentages of potential GDP while the second column uses the CBO's cyclically adjusted data for revenue and for total deficit figures. Since cyclically adjusted and unadjusted total outlays are very similar and no details are available on a cyclically adjusted basis, only the revenue and total deficit figures are presented in cyclically adjusted form.

[32] For a more complete discussion of fiscal policy in the Reagan years, see my introductory chapter in Feldstein (1993) and the section of that volume dealing with the budget issues.
[33] The change in the net interest bill also reflects changes in interest receipts and in the interest rate.
[34] The budget numbers are from CBO (2010a) . The tax expenditures are described in section 4 of this paper.

Table 1

Changes in Budget Components in the Reagan Presidency: 1980 to 1988

	Unadjusted	Cyclically Adjusted Revenue*
- 0.4	- 0.9	
Defense	+ 0.9	+ 0.9
Nondefense Discretionary	- 1.6	- 1.6
Mandatory	- 0.5	- 0.5
Spending excluding net interest -1.1		- 1.1
Net Interest	+ 1.1	+ 1.1
DEFICIT*	+ 0.4	+ 1.1
Primary Deficit*	- 0.7	- 0.1
Tax Expenditures	*- 0.9*	*- 0.9*
*Full taxes**	*- 1.4*	*- 1.9*
Full spending excluding net interest	- 2.1	- 1.9

*Deficit as percent of potential GDP**	*3.1*	*3.3*
*Primary deficit as percent of potential GDP**	*0.1*	*0.2*

Figures marked with an asterisk are cyclically adjusted.
All figures before the last two lines are changes as a percent of potential GDP. The final two lines of the table show the *leve*l of the deficit as percent of potential GDP.

Although revenue declined (by 0.4 percent of GDP)[35] and the defense share of GDP rose (by 1.0 percent) , these changes were more than offset by the decline in non-defense discretionary spending (by 1.6 percent of GDP) and in mandatory outlays (down 0.5 percent of GDP).[36] As a result, total spending excluding net interest fell by 1.1 percent of GDP. Because of the rise in interest costs, the deficit rose by 0.4 percent of GDP to a total of 3.1 percent of GDP. However, the primary deficit in 1988 was just 0.1 percent of GDP.

Tax expenditures were reduced during the period from 1980 to 1988 by 0.9 percent of GDP. Without that change, taxes in 1988 would have been 0.9 percent higher. The actual change in "full taxes" -- i.e., the decline in taxes other than tax expenditures -- was therefore 1.4 percent of GDP. Counting the fall in tax expenditures as a decline in nondefense discretionary spending implies that "full spending" excluding net interest fell by 2.1 percent of GDP.

[35] All of these percentages are stated as percentages of potential GDP. This does not distort the picture but makes comparisons somewhat more meaningful

[36] The decline in mandatory outlays was achieved despite Social Security outlays remaining a constant share of GDP and outlays for Medicare and Medicaid rising relative to GDP. This was achieved by cuts in a variety of the "other mandatory" programs.

The fiscal deficit rose sharply in the early years of the Reagan presidency, reaching a peak of 5.7 percent of GDP in 1983 from 2.7 percent in 1980. More than half of this 3.0 percent deficit increase was cyclical since the cyclically adjusted deficit only rose by 1.2 percentage points, from 2.1 percent of GDP in 1980 to 3.3 percent in 1983. The rise in net interest outlays from 1.9 percent to 2.4 percent accounted for more than a third of the increased cyclically adjusted deficit. The remaining 0.8 percent of GDP rise was the net effect of four components: a decline of cyclically adjusted revenue, increases in defense spending and mandatory outlays, and a substantial fall in nondefense discretionary outlays.

It is interesting to consider how that 5.7 percent of GDP deficit was cut almost in half to 3.1 percent of GDP in 1988. This was achieved even though net interest rose by 0.6 percent of GDP, from 2.4 percent of GDP in 1983 to 3.0 percent in 1988. How did the primary deficit go from 3.2 percent of GDP to 0.1 percent of GDP in 1988, an improvement of 3.1 percent of GDP?

One answer is that cyclical conditions improved dramatically. The cyclical component of the budget deficit was 2.3 percent in 1983 but was a negative cyclical effect (reflecting above trend GDP) of 0.2 percent in 1988. This swing of 2.4 percent accounts for about three-fourths of the improvement in the primary deficit.

Half of the remaining 0.7 percent of GDP budget improvement was achieved by cutting nondefense discretionary outlays between 1983 and 1988 by 0.4 percent of GDP. Some of the 1.0 percent decline in miscellaneous mandatory expenditures was cyclical and the rest closed the remaining gap in the cyclically adjusted primary deficit.

The defense share of GDP rose by 0.1 percent. The primary mandatory programs (Social Security, Medicare and Medicaid) took the same share of GDP in 1988 as in 1983. Tax expenditures were reduced by 1.9 percent of GDP, allowing sharp tax rate reductions without any decrease in cyclically adjusted revenue as a share of GDP.

In short, the Reagan years achieved a substantial rise in defense outlays and decrease in tax rates while lowering the primary deficit to just 0.1 percent of GDP by reducing tax expenditures, nondefense discretionary spending, and the "mandatory" programs other than Social Security, Medicare and Medicaid. Even though net interest rose by 1.1 percent of GDP, the total deficit including net interest only rose by 0.4 percent of GDP.

George H.W. Bush

The four years of the presidency of George H.W. Bush saw changes in budget composition with no net impact on cyclically adjusted fiscal deficits. The entire rise in the budget deficit -- from 3.1 percent of GDP in 1988 to 4.5 percent in 1992 -- was due to deteriorating economic conditions. The cyclically adjusted deficit was 3.3 percent of GDP in both years. Despite increases in tax rates, the cyclically adjusted total revenue fell from 18.1 percent to 17.9 percent. This was balanced by a fall in cyclically adjusted outlays from 21.4 percent of GDP to 21.3 percent of GDP.

The big shifts in spending were a cut in defense outlays by 1.1 percent of GDP balancing a rise in Medicare and Medicaid spending of 0.7 percent of GDP and of 0.3 percent of GDP in "other mandatory spending". Nondefense discretionary outlays and Social Security remained at the same share of GDP. Even interest on the national debt remained unchanged as lower interest rates offset a larger debt.

Bill Clinton

The budget policies of the Clinton administration caused the national debt to decline in each of the final four years of the Clinton presidency, the only such sustained decline in the nominal debt since the three years of decline after World War II.[37]

The annual deficit went from 4.5 percent of potential GDP in 1992 to a surplus of 2.5 percent of GDP in 2000. Part of this improvement was due to improved cyclical conditions. But even on a cyclically adjusted basis, the swing was from a deficit of 3.3 percent of GDP to a surplus of 1.1 percent.

The primary source of this 4.4 percent of GDP improvement in the budget situation was the rise in tax revenue. Cyclically adjusted revenue rose by 2.1 percent of potential GDP to 20.0 percent of potential GDP.[38] Tax expenditures rose by 0.9 percent of GDP, implying that full taxation rose by an additional 0.9 percent for a total increase of 3.0 percent of potential GDP.

The other major source of the fiscal improvement was a sharp cut in defense spending, from 4.7 percent of GDP to just 3.1 percent of GDP, the lowest defense share since 1940.

[37] See the Appendix to this paper for a brief analysis of the national debt reductions after World War II.
[38] Actual revenue was 20.6 percent of GDP, a level exceeded only by the 20.9 percent at the peak of World War II spending in 1944. Comparable cyclically adjusted data are not available.

Taken together, the increase in cyclically adjusted "full taxation" and the fall in defense spending reduced the budget deficit by 4.6 percent of potential GDP. Lower interest rates caused the net interest to shrink by 0.8 percent, making the total potential budget improvement 5.4 percent of GDP.

None of this potential budget improvement was used to increase traditional outlays on domestic programs. Instead, the rise in domestic spending was achieved through the 0.9 percent of GDP increase in tax expenditures.[39] Traditional non-defense domestic outlays actually declined from 3.6 percent of GDP to 3.4 percent while mandatory outlays fell from 10.1 percent of GDP to 10.0 percent as the rise in Medicare and Medicaid (from 2.9 percent to 3.3 percent) was offset by a 0.3 percent of GDP decline in "other mandatory" and a 0.1 percent decline in Social Security.

In short, higher taxes and reduced defense spending were used to reduce the budget deficit and to increase backdoor domestic spending through the tax code.

George W. Bush

The fiscal record of George W. Bush is difficult to assess because of the massive economic downturn that began at the end of 2007. Although the CBO presents cyclically adjusted figures, the difficulty of doing the cyclical adjustment implies that it is useful to look at results for the period ending in 2007 as well as the period through 2008. These figures are presented in Table 2.

In 2007, before the downturn began, the fiscal deficit was just 1.2 percent of GDP on both a cyclically adjusted and an unadjusted basis (not shown in Table 2). That compares with a surplus of 1.1 percent of GDP in 2000 for a swing of 2.2 percent of GDP. Without the cyclical adjustment, the budget moved from a 2.5 percent surplus to a 1.2 percent of GDP deficit, implying that the cyclical deterioration from 2000 to 2007 accounted for nearly 40 percent of the budget deterioration through 2007.

In 2008, the fiscal deficit was 3.1 percent of GDP and 2.8 percent on a cyclically adjusted basis. The 1.9 percent of GDP rise in the deficit from 2007 to 2008 was dominated by the decline in revenue (1.1 percent of GDP) and the increase in "other mandatory" outlays (which include unemployment benefits and certain means tested programs). Because of this, I will focus on the comparison of 2000 and 2007, although presenting data in Table 2 for 2008 as well.

[39] There are no cyclically adjusted estimates for tax expenditures. The business cycle might affect the size of tax expenditures by moving individuals to different marginal tax rates.

The deficit in 2007 was only 1.2 percent of potential GDP on both a cyclically adjusted and unadjusted basis. With a net interest bill of 1.7 percent, the primary balance in 2007 was a budget surplus of 0.5 percent of GDP.

Between 2000 and 2007 the national debt as a percent of potential GDP was essentially unchanged, rising from 36.0 percent in 2000 to 36.2 percent in 2007 before rising to 39.7 percent in 2008.

Table 2

Changes in Budget Components in the Presidency of George W. Bush

	Change from 2000 to 2007	Change from 2000 to 2008
Revenue*	-1.6	- 2.5
Defense	+ 0.8	+ 1.1
Nondefense Discretionary	+ 0.2	+ 0.2
Mandatory	+ 0.4	+ 0.9
Spending excluding net interest	+ 1.4	+ 2.2
Net Interest	- 0.6	- 0.6
DEFICIT*	+ 2.2	+ 3.9
Primary Deficit*	+ 2.9	+ 4.5
Tax Expenditures	*- 0.7*	*- 0.8*
*Full taxes**	*- 2.3*	*- 3.3*
Full spending excluding net interest	+ 0.7	+ 1.4

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*Deficit Level as percent of potential GDP**	*1.2*	*3.1*
*Primary Deficit Level as percent of potential GDP**	*- 0.5*	*1.4*

**Figures with an asterisk are cyclically adjusted*
All figures except the final two lines are changes as a percent of potential GDP.
The final two lines of the table show the level of the deficit as percent of potential GDP in the final year.

Table 2 shows the changes in the key budget components from 2000 to 2007 and 2008 and the deficit levels in 2007 and 2008. The revenue figures and deficits are presented on a cyclically adjusted basis. Since spending totals are very close on a cyclically adjusted and unadjusted basis and details of components are not available, those outlays are shown with no cyclical adjustment.

During the seven years through 2007, "full spending" (including defense and domestic outlays, tax expenditures, and net interest) was essentially unchanged, declining by less than 0.1 percent of GDP. The cyclically adjusted budget went from a surplus of 1.1 percent of GDP in 2000 to a cyclically adjusted deficit of 1.2 percent of GDP because full taxes fell by 2.3 percent of GDP. If the effect of changes in tax expenditures is ignored, spending rose by 0.7 percent of GDP and taxes fell by 1.6 percent of GDP.

More specifically, non-defense discretionary spending rose by 0.2 percent of GDP and mandatory spending rose by 0.4 percent. The mandatory increase was the result of a 0.7 percent of GDP rise in Medicare and Medicaid outlays (with about half of this due to the new Medicare part D program) offset by a small decline of Social Security from 4.3 percent to 4.2 percent and a larger 0.2 percent decline of "other mandatory programs." This 0.6 percent of GDP net increase in nondefense outlays was balanced by a fall in tax expenditures of 0.7 percent of GDP. The budget was also helped by a decline of interest costs from 2.4 percent of GDP to 1.7 percent.

The 0.7 percent of GDP decline of tax expenditures implies that the 1.6 percent of GDP fall in revenue understates the actual tax cut by 0.7 percent, i.e., that "full taxes" fell by 2.3 percent of GDP and that the government then took back 0.7 percentage points of this by reducing spending done through tax expenditures. This is shown in Table 2 as a fall of full taxes of 2.3 percent and a rise of full spending excluding interest payments of 0.7 percentage points. Excluding defense and interest, full spending declined by 0.1 percent of GDP between 2000 and 2007 and rose by 0.3 percent of GDP between 2000 and 2008.

6. Conclusion

The projected path of the U.S. national debt is the major challenge facing American economic policy. Without changes in tax and spending rules, the national debt would rise from 62 percent of GDP now to more than 100 percent of GDP by the end of the decade and nearly twice that level within 25 years.

Allowing the national debt to remain on that trajectory would pose serious risks for the economy and for our national security. This paper discusses three strategies that, taken together, could reverse this trend and reduce the ratio of debt to GDP to less than 50 percent.

The first strategy, labeled "stop digging," focuses on the current decade and the budget proposals of the Obama administration. A "stop digging" strategy would reduce the proposed spending increases and tax reductions that would otherwise add $3.8 trillion to the national debt in 2020, an amount equal to 17 percent of that year's GDP.

The second strategy deals with the long-term costs of the Social Security, Medicare and Medicaid programs. The combination of population aging and the rapidly rising cost of medical care would raise the cost of these programs from about 10 percent now to 17 percent of GDP in 2035 and more than 25 percent of GDP in 2084, with the vast majority of this increase coming from the health

programs. Paying for these benefits with the current pure tax-financed structure would require raising all personal and corporate tax rates by more than 50 percent. Although this has led to calls for large cuts in health spending, the projected increase of per capita GDP (150 percent over the next 75 years) means that non-health spending could rise very substantially even if there is no reduction in the projected rise of Medicare and Medicaid.

The real problem is therefore not the future cost of health care but the tax consequences of paying for that care through taxation. A strategy to augment the tax financed benefits with investment based accounts would permit the higher future spending on health care and pensions with an additional saving rate of only about four percent of GDP on top of the current tax revenue.

The third strategy focuses on "tax expenditures," the special features of the tax law that reduce revenue in order to achieve effects that might otherwise be done by explicit outlays. Most federal government non-defense spending, other than Social Security, Medicare and Medicaid, is now done through tax expenditures rather than by direct cash outlays. These tax expenditures include deductions, credits and exclusions that now result in an annual total revenue loss of about $1 trillion or more than 6 percent of GDP. Significant reductions in federal domestic spending would therefore require changing tax rules to limit tax expenditures. Such changes in tax rules could reduce future deficits without increasing marginal tax rates or reducing the rewards for saving, investment and risk taking. Those changes in the tax laws would cause permanent reductions in spending and deficits.

Although the task of reducing the projected deficits is politically challenging, the historic record is actually encouraging. The fiscal deficit that reached 109 percent of GDP in 1946 after World War II was returned to the pre-war level by 1960 through a "stop digging" strategy that prevented any rise in the nominal national debt. The combination of real GDP growth at 2.6 percent and inflation at 3.3 percent brought the ratio of debt to GDP down to 46 percent.

More recently, the presidencies of Ronald Reagan and George H.W. Bush experienced temporary surges in budget deficits but each ended with cyclically adjusted primary deficits of just 0.2 of potential GDP. The Clinton administration ended with a cyclically adjusted fiscal surplus of 1.1 percent of GDP. Until the economic and financial crisis began in 2008, the administration of George W. Bush had a cyclically adjusted surplus of 0.5 percent of potential GDP.

Cambridge, MA
September 2010

APPENDIX

The National Debt After World War II

The national debt rose during World War II from 42 percent of GDP in 1941 to a record 109 percent of GDP at the end of 1946. The debt ratio then fell slowly, getting back to 46 percent of GDP in 1960. This appendix examines what caused that debt ratio to decline.

The nominal level of the government debt held by the public rose from $48 billion in 1941 to $242 billion in 1946 and was at virtually the same level ($237 billion) in 1960. It achieved this despite the fact that the period included the Korean War years and that debt increased in nine of the 15 years.

At the end of World War II the debt fell by about 10 percent over the next two years, reaching $216 billion in 1948. It rose briefly to $219 billion in 1950 and then fell to $214 billion in 1951. From 1951 to 1960 it rose by one percent of GDP per year, bringing it back to $237 billion.

During the years from 1946 to 1960 the level of nominal GDP rose by 133 percent, causing the debt to GDP ratio to fall from 109 percent to 46 percent. About half of the rise in nominal GDP over this period was real and the rest was

the rise of the price level. Real GDP grew at 2.6 percent a year and the GDP price level rose by 3.3 percent a year. The details are shown in table A

From 1946 to 1950, the nominal debt fell 9.5 percent. If the nominal GDP had remained unchanged, the debt to GDP ratio would have declined from 1.09 to 0.98. With the flat real GDP between 1946 and 1950, the rise in the price level caused all of the decline from 1.09 to 0.80 in 1950.

From 1950 to 1955, the nominal debt rose just 3.5 percent. The 27 percent rise in the real GDP during those years would have reduced the debt to GDP ratio to .65. The actual decline was to 0.57.

And from 1955 to 1960 the nominal debt rose by 4.5 percent and real GDP rose by 16 percent. The combination would have left the debt to GDP ratio at 0.51. The remaining decline to 0.46 was due to higher prices.

Table A

The National Debt from 1941 to 1960

	Debt**	GDP*	Debt/GDP	Real GDP***	Price Level****
1941	$ 48	$114	0.42	$1264	9.0
1946	242	223	1.09	1883	11.8
1950	219	273	0.80	1880	14.5
1955	227	396	0.57	2394	16.5
1960	237	519	0.46	2785	18.6

* Nominal GDP in billions of dollars
** Debt in billions of dollars held by the public (including debt held by Federal Reserve
*** Real GDP in billions of chained 2005 dollars
**** CPI with 100 in 2005

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