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IN THE SHADOW OF DEBT

An Introduction to the US Budget Imbalance

Our Federal deficit and national debt are on everyone's mind. It doesn't take many surfs through the TV channels to find dramatically different opinions of the costs imposed on us by the debt, the likelihood of a financial crisis, and the appropriate steps to deal with the problem. Economists, like politicians and the general public, cover the full spectrum of opinion on these issues; but there is a middle ground occupied by most economists. Speaking from this middle ground, we hope to place in perspective the causes of our budget imbalance, its seriousness, and the available remedies.

This primer will address four topics. In the first chapter, we lay the groundwork by defining terms and collecting data: what are the debt and the deficit; how are they measured; and how does the current situation compare to the past and to that of other countries? A second topic is whether our nation faces bankruptcy and financial crisis without corrective action and what needs to be done, in the next decade and beyond, to make the budget sustainable. We can act abruptly, and sharply limit the size of the debt, or gradually, and accept a larger obligation. Such choices motivate our third topic: what are the benefits to us and the burdens on future generations of our deficits and the debt they imply? The greater the burden, the more quickly and decisively we should act. Finally, we take a more detailed look at the components of the US budget to discover how the deficit has emerged, how it is likely to evolve without corrective policies, and some proposed options for reaching a sustainable level of deficits at the end of the decade.

The bottom line is that although we do not face an immediate debt crisis, the debt problem is large and real solutions will require significant changes in taxes and spending on popular programs. We cannot grow out of the problem. Comprehensive reforms are necessary and should begin to be implemented in the next few years.

ONE: THE MESS WE'RE IN

The deficit of our Federal government is the excess of its expenditures over revenues in a given year. Expenditures include the costs of our military and government employees; payments to the retired, sick, and unemployed; and interest charges on the accumulated borrowings. Revenue is mainly in the form of tax collections. For 2010, estimated expenditures were approximately 3.5 trillion dollars and

estimated revenues were approximately 2.2 trillion dollars; the difference is the Federal deficit of approximately 1.3 trillion dollars. For 2011, the deficit is expected to be even larger, approximately $1.5 trillion.

The gross national debt is the total, accumulated amount borrowed by the US Treasury since the birth of our country. Nowadays, these funds are obtained primarily through the sale of government bonds. Some of this debt is owed to and owned by US households, businesses, and governments not a part of the Federal system and by foreign individuals, businesses, and governments. This portion of the debt is said to be "owned by the public." The rest of the gross debt is held by departments of the Federal government different from the Treasury, notably by the Social Security Administration. This portion of the debt exists as paper entries on the books of the government and does not involve the literal payment of interest to, or acquisition of funds from, a party outside of the government. Consequently, it is irrelevant to the way government actions affect the economy. The meaningful portion of the debt, owned by the public, is the definition used throughout our discussion. At the end of 2010, the national debt held by the public was approximately 9.0 trillion dollars. In contrast, the gross debt was approximately $13.5 trillion.

The debt and deficit are intimately related. Since the US Federal government must borrow every dollar of spending that is not covered by revenues, the deficit represents the increase in the national debt from one year to the next. (Actually, because our government sometimes makes loans at the same time it borrows, this assertion is not exact; but the discrepancy is minor and will be ignored here.) In analogy to the use of a credit card: the deficit is similar to the monthly charges that are not paid off, and the debt is the outstanding balance against the account. Failing to cover at least the monthly charges is dangerous, because the outstanding balance grows, and interest expenses grow, and the outstanding balance can spiral out of control. Such is the fear that deficits will lead to more debt, more expenditures on interest, and in turn ever growing deficits.

The Congress legislates a debt ceiling. As presently set, the ceiling puts an upper limit of roughly $14.3 trillion on the dollar value of the *gross* debt -- that is, the uninformative measure of the debt that includes all of what the Treasury has borrowed from the public and from other departments of the Federal government. At the moment the ceiling is reached, additional borrowing by the Treasury becomes illegal; so, every dollar of new expenditure must await a dollar of new tax revenue. The budget will be forced into balance as a result. Elimination of a $1.3 trillion deficit in the tick of a clock, in unplanned fashion, is almost inconceivable and no one knows how it could be done. Certainly, the immediate consequence would be the non-satisfaction of many obligations, like federal worker pay, interest to creditors, and payments to the retired and unemployed For this reason, failure to increase the debt ceiling does not in itself solve our fiscal problems in a satisfactory way, would severely jolt an already fragile economy, and might even bring about the crisis in financial markets that fiscal conservatives fear from deficits. Because the consequences would be dire, some believe that the threat of maintaining the ceiling can spur other actions to correct the deficit in the long term.

For comparison over time and with other countries, deficits and the debt should be gauged in relation to the economy as a "whole," often measured as the gross domestic product (GDP), the dollar value of goods and services produced within a country during a given year. The ratio of the deficit or debt to GDP can be legitimately compared over time because they are not distorted by inflation or economic growth. Figures 1 (deficits) and 2 (debt) and Table 1 show these ratios over the last 40 years. Here, we can see that relative to GDP deficits and the debt in 2009 and 2010 have reached levels unprecedented during peacetime. (US debt exceeded the GDP shortly after WWII but fell quickly to less than half of GDP as the economy grew rapidly after the war.) During the 38 years before 2009, only 8 times had the deficit been larger than 4 per cent of the GDP, and only once as large as 6 per cent. Debt had never reached 50 per cent of the GDP and, except for years 87-98 had been less than 40 per cent, and sometimes less than 30 per cent, of GDP. During the last two years, deficits have been 9-10 per cent of GDP and the national debt has grown to over 60 per cent of GDP. Deficits projected for 2011 and 2012, at least, will be similarly large, and the debt is expected to grow as a proportion of the GDP. Without question, these are red flags.

Has the deficit been caused by a deficiency of tax revenues, or an excess of expenditures, relative to historical standards? Chart 3, which shows the ratio of revenue to GDP and expenditures to GDP, indicates that both parts of the deficit have broken new ground. Revenues have averaged approximately 18.0 per cent of GDP over the last forty years, but in 2009 and 2010 tax collections were only 14.9 per cent of the GDP. These ratios are the lowest in the entire 40 year history. Expenditures in the last two years were 25.0 and 23.8 per cent of GDP, in comparison to the average of 20.8 per cent, and are also the largest during the entire period.

Digging deeper, we must ask what policies and circumstances have caused this hemorrhage in the budget. There is no single source (more on this in chapters to follow), but at least some of the hemorrhage is not caused by changing government policies at all. Rather, part of the deficit is a passive response to the depressed state of our economy. We have noted that the deficit is unprecedented in modern history, but so too is the extent of the recent economic downturn, as measured by the unemployment rate – the highest it has been in the last forty years – and as measured by the percentage gap between what we in fact produce and what we would produce if the workforce were fully employed. The latter is called "potential GDP." The size of these recent output gaps, shown in Table 1, reveal that we really are experiencing the Great Recession. It is no accident that the other severe economic downturn in modern history, the eight years 1980-1987 when the US was significantly underemployed, were also the years of extreme deficits in relation to GDP.

Chart 3 illustrates how the deficit is sensitive to the state of the economy. Periods of slowdown in economic growth (which correspond approximately to periods of rising unemployment) are shaded in the chart. During these periods, revenues systematically decline as a percentage of GDP, and expenditures systematically increase. Even if tax laws and policies are unchanged, revenues fall when growth slows or is negative, because taxes collected on personal income and business income fall as incomes fall. In fact, revenues decline severely in relation to GDP, because people are pushed into lower tax brackets and some of the tax base unrelated to GDP (eg, capital gains) evaporates. Even if the

laws which underlie Federal expenditures are unchanged, expenditures relative to GDP increase during economic downturns, in part because many expenditures (such as national defense) are not automatically reduced in line with GDP and in part because other expenditures, such as unemployment compensation and aid to the poor, actually increase when the economy worsens.

These passive movements of the budget in response to economic fluctuations are not of major concern, because they are not a permanent feature of the budget: they will go away, and even be reversed, when the economy returns to full employment and to boom periods. (Indeed, most economists regard this passive response as a good thing, because the automatic tendency for tax collections to fall and expenditure to increase during downturns stimulates demand when times are bad and, hence, dampens the size of economic fluctuations. For this reason, the passive budget response is known as "automatic stabilization.") We seek a measure of the budget which measures expenditures, revenues, and the deficit purged of these automatic reactions to the state of the economy. Such a measure (carefully constructed but necessarily speculative) is compiled by the Congressional Budget Office (CBO), among others. Known as the structural budget deficit, it computes the deficit that would happen under existing tax laws and expenditure rules IF the economy were at full employment.

Table 1 and chart 1 show the US structural budget deficit as a percentage of the potential GDP. The table and chart also show periods of excessive unemployment, during which actual GDP falls below potential GDP. As is evident, when the GDP is below its full employment level, the actual deficit relative to GDP is larger than the structural deficit relative to full employment GDP. For example, if the economy had been fully employed in 2010, the deficit would have been reduced by 360 billion. According to this latter measure, structural deficits in modern times have rarely exceeded 4 per cent of GDP under full employment – the mid-80s continue to catch our eye – but deficits in the last two years remain at unprecedented levels, of 7.3 and 6.1 per cent of potential GDP. This refined view of the deficit reminds us that relative to the economy the core overspending is not as large as we first supposed, but it does not change our conclusion that the budget imbalances of recent years are unique and ominous. Fancy calculations cannot hide this truth.

Comparative information from around the world provides another useful perspective on our budget situation. In Table 2 we look at budget data for the seven largest industrial countries (the "G7") and three smaller European economies in financial turmoil. These data, compiled by the International Monetary Fund, average results from 2009 and 2010 and differ slightly in definition from the data in Table 1. Among the G7, as a share of GDP, US debt is in the middle range and quite typical. However, the US deficit, along with those of Japan and the UK, are the largest in the industrialized world, even after accounting for the automatic response to the recession. Another interesting feature is that the US has relatively low taxes among industrialized countries. Only Japan has lower government revenues as share of GDP.

From the Table, we can sense why Greece, with atypically large debt and deficits, and Ireland, with massive deficits and a severe recession, have come under pressure. But Portugal, mentioned often as

another possible target for international speculators, has debt and deficits not dissimilar from the US. Are we in danger? That is the topic we take up next.

TWO: ARE WE BROKE?

Let there be no misunderstanding: governments, like households, must live within their means. Households (neglecting inherited and bequeathed wealth) must match spending over their lifetime to earnings over their lifetime. In any particular year, it often makes sense to lend, or to borrow; but households cannot borrow too much. If their debt (net of acquired assets) exceeds their likely future earnings, minus necessary expenditures, they are broke. Similarly, if a government's debt has grown so large that it cannot be repaid (in a sense to be explored below), that government is broke.

Most Americans would be surprised to learn of the frequency of national bankruptcies around the world and over history. For example, in a comprehensive study of financial crises, Rinehart and Rogoff (2009), chapter 5, estimate that after World War II, almost 40 per cent of the countries of the world were in default; and during the 1980s, almost 10 per cent. The train of events triggered by unsupportable debt have played out many times. Investors lose confidence and try to sell the debt, lowering its value, or insist on higher interest in compensation for the heightened risk. These reactions, which depress the economy and increase the interest owed by the government, inflame the situation into a crisis, which ends in default – the government's admission that it won't keep its promise to repay. The economy is thrown into turmoil; and having lost its reputation for sound decisions, the government's ability to borrow in the future deteriorates. Recent examples are Argentina 2001/2002, and Ireland and Greece in 2009/2010. (See CBO July 2010 for a nice summary.)

Principles of sound finance apply to governments and households alike. But governments differ from households in several crucial regards. These differences make us re-think what it means for a government to be broke and help to put into context the solvency of the US.

1) Households have limited lifespans and must settle their financial affairs at the end. Our government, we hope, lives on indefinitely. There never comes a time when its debt must be eliminated; instead, it can "roll over" its debt, issuing new to fund the old, for as long as people are willing to loan it the money. All governments use this technique. The key is to make sure that the government can always cover the interest owed on the debt. The interest is paid out of the excess of tax revenues over expenditures on government programs. Since taxes are collected mainly from our national tax base the GDP, and government expenditures other than on interest grow in rough proportion with the size of the economy, this rollover technique works as long as the debt grows no faster than does the GDP. In this situation, the budget is said to be sustainable. A country is broke when it cannot, or will not, achieve a sustainable budget.

2) Households and businesses are broke when the sacrifice of paying back their debts is extreme and unreasonable. Legal standards govern when the sacrifice is unbearable and how much creditors can recover. In contrast, governments face no enforceable legal standard which dictates when repayment is unbearable and what creditors are entitled to. A government's revenues—its tax collections—and

expenditures are not set in stone: they are determined in the political process. Governments can, and do, default on their debt. Countries which go broke almost always have the ability to collect sufficient taxes, or reduce programs, to sustain their debts. After all, in principle, the entire GDP, minus expenditures necessary to maintain life, is available to finance the interest. Countries go broke because they are unwilling to make such dire sacrifices from their citizens. Instead of bearing the burden of high taxes or reduced programs to sustain the debt, they choose to suffer the costs of default. In consequence, there is no simple, judgment-free determination of when a country is likely to go broke: sustainability is a subtle balance of political will and the penalty of breaking your promise. This balance is different for different countries and times.

With these ideas in mind, we can grapple with several key questions.

A first set of questions relates to sustainability of the US budget. Is it now sustainable? If not, how far do we need to go to make it sustainable? The answers to these questions depend on the long term growth rate of the US economy: the faster GDP grows, the more debt can grow without gaining as a percentage of GDP. For many years, the rate of growth of US production under conditions of full employment has averaged around 2.5 per cent per year. Our Federal Reserve targets about 2 per cent inflation under normal conditions. Thus, many economists would ballpark average GDP growth at approximately 4.5 per cent per year into the future. Debt levels in recent years and in the near term forecast are on the order of 60 to 70 per cent of GDP. Under these circumstances, the deficit could be on average 2.7 to 3.2 per cent of the GDP without generating an increase in debt relative to the size of the economy. Consequently, many economists believe that a structural budget deficit relative to full employment GDP on the order of 3 per cent would be sustainable for the US.

Relative to full employment GDP, our structural deficit in 2010 (and likely for 2011) is on the order of 6 per cent. This budget is not sustainable. To achieve a sustainable budget, we need to increase tax revenues, or reduce government programs, on the order of 3-4 per cent of full employment output – in current dollars about $500 billion per year. This goal is not easy. For example, $500b is considerably larger than the entire non-military payroll of our Federal government. The goal will become far more difficult to achieve as our population ages, or if our debt/GDP ratio is allowed to increase substantially. But, as we discuss in subsequent chapters, sustainability is achievable.

A second, related question is whether our debt level is now, or in the foreseeable future, so high that we are vulnerable to a loss of confidence by international investors -- that is, should the marketplace believe our budget may not reach sustainability? To answer this question, we must ask how large a sacrifice, in the form of higher taxes or smaller government programs, the US public would accept in light of the cost to our country of default. In truth, no one knows the answer to this question with precision. But as we look around the world, the US – with a debt to GDP ratio typical of industrialized countries -- is well positioned to shoulder its debt. Its rate of economic growth over the long term has been healthy, and steady, by the standards of the industrialized world, and it borrows at favorable interest rates. US taxes are low by the standards of the industrialized world, and our systems of tax collection and expenditure are efficient and free of corruption. Thus, at the same ratio of debt to GDP,

the excess of taxes over expenditures (relative to GDP) necessary for sustainability is smaller in the US than in most other countries; and the budget policies needed to bring these changes about involve less pain. In the broader, global picture, our government is stable and our cohesion as a nation is strong: we accept the promises of our government in the past as our own and take some responsibility for the welfare of our future citizens. Also, the cost to the US of a default on its debt and consequent loss of international reputation is very high. We are one of the few countries that has *never* defaulted; we obtain large benefits of having our assets held throughout the world and the dollar as the world's currency; and the consequences for the world economy of a debasement of US obligations would be cataclysmic. No one knows the "trigger point" at which US debt/GDP gets so large that rational investors should panic. But in comparison to almost all countries, including those in the industrialized world, the relatively small size if its sacrifice to stay solvent, and the relatively large cost of a repudiation of its promises, make a US default now or in the foreseeable future *almost* inconceivable.

The marketplace agrees. The interest rates on long term US Treasury obligations were at historical lows at the end of last year and remain low by historical standards and in comparison to the interest rates on comparable obligations of many other industrialized countries, including Canada, France, and the UK. Rates on German bonds, while slightly lower than US rates at the time of writing, are surprisingly similar in light of the likely fall in the value of the dollar in the future. While suggestive, this evidence is not decisive, because interest rates are driven by many forces in addition to default risk (especially, the actions of the Federal Reserve now and expected in the future) and international comparisons are distorted by expected changes in currency values. More direct evidence on confidence is provided by the price of insurance on government obligations (known as credit default swaps on sovereign debt) and the assessments of the several agencies who specialize in rating national and corporate debt. Insurance against default on US debt is among the cheapest in the world, because the marketplace views US debt as among the safest. For example, at the end of 2010, out of the 56 nations whose national debt can be covered by insurance, only 4-6 nations (depending on whether the insurance is for 5 year or 10 year bonds) had debt with cheaper insurance than that on US debt. Notably, insurance on France, Germany, and the UK was more costly. Standard and Poor's, among other ratings agencies, assigns the US debt its highest AAA rating for quality, a rating earned by less than one sixth of 126 countries. By these measures, US debt is among the safest in the world.

Recent events do not negate this conclusion but surely give us pause. The price of insurance against US default rose during the first quarter of 2011, and at the end of that period the debts of 6-9 countries could be insured more cheaply than could US debt. Partly, markets reacted to a temporary worry about debt service if the debt ceiling is not raised; but also markets reacted to the heated debate and possible gridlock in Washington on long term deficit reduction. Standard and Poor's (April 18, 2011) took the US to task for its lack of consensus on a deficit reduction plan and has indicated that failure to act could result in a downgrade of US debt from AAA to AA quality. These developments are healthy early warnings that even the US is not immune to the serious consequences of excessive debt: we should not delay action much longer. But these developments also put our situation in context. To dodge the downgrade, Standard and Poor's does not look for immediate, sizable deficit reduction but rather a

credible and enforceable plan for the long term to be agreed upon over the next two years. Despite the recent increase in the price of insurance on US debt, we remain in elite company (cheapest 1/6); and US debt is still cheaper, or virtually the same, to insure than those of the large industrial countries on the Continent. Comparisons to Greece (price of insurance is 25 times as large) and Ireland and Iceland (insurance price about 12 times as large), or even Italy or Japan, are outrageous: they are in a different league. Similarly, even if the US rating were to fall to AA, its debt quality would be regarded as a hairwidth in quality below that of AAA, still imminently secure (only about 1/10 of countries achieve the AA rating), and hardly in the same class as Portugal, Ireland, Greece, and Iceland (BBB countries). In this worst case, the US will face higher borrowing rates; and the failure to act will add importantly to our future burden, as discussed in our next installment. But we will still be a long way from national bankruptcy.

In summary: the US is not on the doorstep of a financial crisis triggered by excessive national debt. Even at the debt levels projected for the end of this decade if no corrective actions are taken (about 90 per cent of GDP), it is almost inconceivable that the US would choose to default. The important problems of the fiscal imbalance lie elsewhere. Let us look at them.

THREE: THE BURDEN OF THE DEBT

As we have discussed, our national debt is not likely to bankrupt us. But, it causes other serious problems. It takes away our flexibility to run large deficits in the event of future wars or national emergencies, when otherwise it would make good sense to spread the cost of securing our country over several generations. A large debt limits our government's ability to soften recessions through temporary tax reductions and increases in expenditures. Some believe that when we borrow from other countries, we become beholden to them and lose a degree of sovereignty. These costs of large debt are difficult to measure but surely important. However, one consequence of large debt eclipses all of the others: when our government borrows today, it necessarily lowers the standard of living of citizens in the future. This harm to the future is known as the burden of the debt. The most compelling argument to correct our fiscal imbalance is that our deficits are taking resources away from our children and grandchildren.

What is the source of this burden? How large is it, if we fail to get our imbalance under control? Let us begin with **the basics**, and then turn to some important **refinements** that shed light on the timing and policies needed to deal with our current problems.

The Basics: Crowding Out and Distortions

One source of the burden is the propensity for government borrowing to "crowd out" private investment expenditures.

Recall that when our government runs a deficit it must borrow the funds to cover the gap between expenditures and revenues. Where will these funds come from? One possibility is to obtain the funds from other countries. For example, the Bank of China might purchase some of the government bonds

sold to finance the deficit. This borrowing from abroad by our government creates a burden because in the future we will pay interest to our foreign creditors, and this interest must eventually come out of taxes on us or a reduction in expenditures on government programs. Indeed, presently 52 per cent of the US national debt is held by foreign citizens or foreign governments, up from 36 per cent a decade ago. The interest we pay on this foreign debt is purchasing power that we could otherwise spend on goods and services but, instead, we are sending abroad. That's a burden on our children. Here, the government's borrowing is said to crowd out *foreign* investment because these borrowed funds are a net reduction in the amount our country is lending abroad.

Another possibility is that the government obtains funds from US businesses or financial institutions. At first glance, because we are in this case borrowing from ourselves, this possibility may appear benign: after all, the taxes raised in the future to cover the interest are just being returned to domestic banks and businesses. Emphatically, such logic is flawed. In fact, the funds borrowed by the government from domestic businesses and banks would otherwise have been used to purchase new machines, new structures, and other projects that make us more productive. Economists call these productive resources the capital stock, and the increase in the capital stock is called *domestic* investment. In this case, the government's borrowing crowds out funds that would otherwise be used for domestic investment, and in doing so will cause the future to have a smaller capital stock. Down the road, we will produce less than we otherwise would. This lost production, related to the rate of return on the projects not undertaken, is a burden. (Below we return to the possibility of government investment.)

"Crowding out" is, for the most part, familiar to all of us: if we carry debt, eventually we must reduce our desired expenditures to repay the debt, or at least cover the interest. That reduction in future consumption is our "burden." However, this analogy does not work perfectly; and estimating the burden of our national debt is considerably more subtle than simply measuring the interest paid on our national debt. For one thing, the relevant interest rate is not the interest rate at which our government borrows but, instead, that rate adjusted for inflation and economic growth. Remember: sound public finance allows debt to grow in a growing economy (keeping the ratio of debt/gdp constant), and debt is less burdensome if it is repaid in dollars shrunk by inflation. In addition, the government debt is not identical to the accumulated investment that has been crowded out. Possibly, a portion of the government's demand for funds is met by increased savings on the part of households, rather than by attracting funds that otherwise would have been used for domestic or foreign investment. If deficits encourage private saving, the burden on the future is lessened. The size of savings offset is controversial, because some forces unleashed by deficits and the eventual policies to correct the imbalance encourage saving (eg, higher interest rates and the anticipation of greater taxes in the future) while other forces discourage saving (eg, taxes on interest). But almost all believe that a hefty share of the government's borrowing results in reduced private investment.

The CBO (Dec 2010) gives one estimate of the costs of our fiscal imbalance. Its model contains assumptions that are plausible to many economists and, hence, provides a useful ballpark estimate of our debt burden, in the following sense. If the US follows its present policies, deficits will grow as a share of GDP and the debt will grow in relation to GDP. (More on this "status quo" path in our next

chapter.) The US could achieve sustainability in 2015 (ie, by adjusting taxes and expenditures to limit deficits to no more than 3 per cent of GDP in that year and beyond), or it could wait until 2025 to achieve sustainability. Of course, if we wait ten years, the debt/GDP ratio that is sustained will be larger; and the tax increase and/or expenditure reduction relative to the status quo needed to achieve that sustainability will be larger. In particular, if we wait, we will have allowed the debt to increase to about 115 percent of GDP instead of 75 percent of GDP, and the tax increase and/or expenditure reduction needed to balance the annual budget is consequently about 3.5 percentage points of GDP larger. The CBO asks: if we stabilize in 2025 rather than in 2015, by how much will our annual consumption in the long run (ie, after 2025, when the economy has re-equilibrated) be reduced? The answer is (depending on the policies undertaken to achieve sustainability) anywhere from 1.5 cents to 5 cents of consumption out of each dollar we make. That is, because of crowding out, for every permanent increase in the debt/GDP ratio of .1, we harm our descendents to the tune of $.40 to $1.25 on every $100 they earn, each year, forever. These are fairly typical estimates of the burden of the debt.

A second source of burden is the inevitable distortions associated with taxes or insufficient provision of legitimate public goods. As we have discussed, when the government creates debt it must eventually raise taxes, or cut expenditures, sufficiently to keep the debt growing no faster than the economy as a whole. If we could collect those taxes in a way that does not distort people's incentives to save, invest, and work, then the cumulative lost investment would be the only source of a burden. However, the act of collecting taxes (or cutting programs, for reasons that would take us on an unproductive detour) typically distorts incentives and creates inefficiencies in our use of resources in the future. As a consequence, the very policies required to correct the imbalance take a toll on the economy.

Like crowding out, attaching a number to the distortions caused by corrective policies is a subtle question that has occupied economists since Adam Smith. All agree that when you tax one person, and transfer that money to another, something is lost in the process, due to the distortions in incentives created by the tax. All agree that this leak in the bucket becomes more serious 1) the more sensitive we are in our decisions to work, save, and invest to the prices we face and 2) the greater is the rate of tax imposed on these activities. However, there is a range of reasonable estimates of our sensitivity, and the complexity of our tax and expenditure system makes tracing incentives highly complex. As a ballpark estimate, many economists believe that every dollar of new tax revenue, derived from an increase in income tax rates, generates $.15 to $.5 of hidden costs to the economy. Thus, in the CBO model cited above, those 3.5 percentage points of GDP of tax revenues that need to be raised as a result of waiting until 2025 have a hidden cost on the order of 0.5 to 1.75 percentage points of GDP. These losses are in addition to the 1.5 to 5 percentage points of GDP of lost direct consumption resulting from the crowding out described above.

Refinements

Up to this point, we have treated all government expenditures as equally burdensome, and all taxes as equally inefficient. In fact, there are important differences. The problems with government borrowing

are crowding out and the inefficiencies created by the future policies that close the gap. The obvious corollary to this observation is that, in attacking our imbalance, we should target for reduction those expenditures which generate the most crowding out and find those tax increases whose distortions are the smallest.

Consider, first, the issue of minimizing tax distortions. Efficient tax systems exploit the entire tax base, have similar tax rates at the margin for different individuals and activities, and make compliance easy and inexpensive. Our tax system is flawed in many ways. Thus, many deficit reduction plans (see next chapter) propose tax reform that would simplify our tax system and reduce marginal tax rates by expanding the tax base, reducing the level of employer benefits than can be sheltered as pre-tax dollars, and limiting deductions which are poorly targeted. These reforms can be accomplished in a way that preserves the progressivity of our tax structure. In addition, we ought to identify taxes that make our economy operate more efficiently, because they correct problems that arise when our market economy fails us. Examples are a gas tax (foreign dependency), a carbon tax (environmental degradation), and a tax on sweetened beverages (public health). Such reforms are always good but are especially timely to moderate the debt burden.

Next, let us reconsider the issue of the crowding out of capital investments. When we, as households, take out a mortgage to purchase a home, or a student loan, we do so to acquire an asset that will bear fruit in the future. Such borrowing makes perfect sense if, in the future, the benefit of our investment – for example, the increase in earnings attributable to our education – can cover the debt service. The calculus is similar for government expenditures that are themselves investments, defined as projects that yield benefits in the future. Yes, borrowing for such expenditures crowds out forms of private investment, but the government investment in its place acts to increase our future production. If the government projects would not otherwise be undertaken by private investors and yield a rate of return at least as large as private projects, then government borrowing to finance those investment expenditures makes perfect sense. Unfortunately, our government does not account satisfactorily for the portion of expenditures that should count as investment; so, we cannot judge how much of its apparent crowding out is actually helping, rather than harming, the future. Many expenditures yield future benefits that are hard to quantify. For example, how quantify the future benefits to our country of defense spending, or the future savings to health costs of preventative medicine today? Despite these conceptual difficulties, there is evidence that *careful* spending on education (especially preschool), basic science research, the environment, and on projects to sustain our transportation and communications infrastructure can yield at least a competitive rate of return. We have cost-benefit frameworks that can guide us. Reducing such expenditures to cure our current fiscal imbalance might be pennywise but surely would be pound foolish. One major challenge in trimming expenditures will be to identify and protect those investment expenditures whose rates of return compare favorably to private opportunities.

The other important case of deficits with modest crowding out is when deficit spending is successful in stimulating the economy in a recession. If government spending, or tax reductions, can increase our income, then this increase will encourage more private saving. As noted above, this new saving will help

to fund the deficit and offset, in part, the reduction in funds available to private investors. Another route to this same conclusion is to recall that investment expenditures are purchases of new capital goods. As such, they are a component of our demand for goods in the aggregate. The government can stimulate the economy by increasing the demand for goods in the aggregate, directly through its own purchases or indirectly through the private spending induced by tax reductions. The government's stimulation is powerful only if it is not offset by reductions in the other components of aggregate demand, such as investment expenditures. From this angle, the greater is crowding out, the smaller is the net impact of government actions on aggregate demand, and the smaller is the net stimulus. In sum, deficits which successfully stimulate the economy are benign, or even beneficial. The future burden from crowding out is lessened by the stimulation, and the employment of resources that would otherwise lie idle is itself a benefit to set against this future cost.

How powerful, in practice, are government tax and spending policies to influence employment and production? Economists divide on this issue, but all agree that the preconditions for successful stimulus are 1) unemployed resources and 2) supportive policies by the central bank to prevent the increase in interest rates (and value of the currency) that would otherwise accompany the action and choke off investment. With unemployment in the US near 9 per cent and a Federal Reserve intent on keeping interest rates and value of the dollar low, the US is now in precisely the circumstances when stimulus through fiscal actions can work. As a consequence, many economists recommend that the significant reductions in spending or increase in taxes required to eliminate our imbalance be delayed while the economy is weak, i.e. until these preconditions for stimulus are no longer with us. Acting earlier delays the recovery and has minor impacts on the crowding out of concern.

To gauge the stimulation and burden of US fiscal policies, we turn again to the analysis of the CBO (Nov 2010). A sizeable portion of the present US budget deficit is attributable to the tax cuts and expenditure increases that happen automatically when our economy declines and happen as a result of active government stimulus. The best known of the latter was the American Recovery and Reinvestment Act (ARRA) of 2009, which increased deficits 2009-2011(mainly) on the order of $800 billion (according to CBO estimates). (Other active stimulus measures were a part of the December 2010 tax extension, which will add roughly $200 billion of deficits (in addition to the delay of tax increases), and the Troubled Asset Relief Program (TARP) which added an estimated $15 billion to government expenditures.) Because these measures were undertaken when the economy was slack and with the assistance of low interest rates maintained by the Federal Reserve, they increased production and (through the additional private savings that income spawned) did not crowd out investment dollar for dollar. How much was crowded out and, the flip side, how much the economy was stimulated, are uncertain, but the CBO provides a range of estimates that span the opinions of most economists and their models. The $800 billion of ARRA deficits added somewhere between $480 to $1200 billion to GDP; $800 billion is a convenient consensus estimate. These estimates of stimulus do not, in themselves, indicate the degree of crowding out. To complete the picture, we must posit a propensity of US households to save an additional dollar of income. For the sake of discussion, we select 30 cents of each dollar saved, a number within a range plausible to most economists.

With these numbers in hand, we can estimate[1] (an upper bound) on the crowding out associated with ARRA. For those who believe in a strong stimulus of $1200b, the crowding out is only $280b: a very favorable trade off. At the other extreme, those who believe in a small stimulus of $480b would predict a crowding out of (at most) $500b. Conservative politicians are prone to assert that recent stimulus measures have been ineffective and should be abandoned. Conservative economists, at the lower end of the belief in stimulus, would give a more nuanced assessment: fiscal policy can work, but each dollar of current GDP created out of idle resources draws approximately one dollar from future income. For those in the middle, under the consensus estimate of a stimulus of $800b, the crowding out is only $400b. Yes, there is a burden, but for every dollar of loss in the future, two dollars are gained in the present.

These are the dimensions of the trade-off relevant for deficit reductions during periods of high unemployment and supportive monetary policies. As we look to the future, the economy will eventually recover. And then we must tackle the difficult problem of how to achieve a sustainable deficit, to which we now turn.

FOUR: THE HARD CHOICES

In 2001, when the US was almost fully employed, it ran a budget surplus of 1.3 per cent of GDP. In 2008, when the US economy was just beginning to experience the slump which prevails to this day, the budget was in deficit equal to 3.2 per cent of GDP. Now mired in that downturn, the US in 2011 is likely to experience a budget deficit on the order of 9.8 per cent of GDP. How did we get here? What does the future hold if we fail to act, and what are the dimensions of the sacrifices required to achieve a sustainable budget? In this chapter we explore key components of the US budget to show how the deficit has emerged, and plans to bring it back into sustainability.

To understand the sources of and potential solutions to our imbalance, let us review the structure of the Federal budget, as summarized in Table 3. In this table, we break down the Federal budget into its major revenue and expenditure categories, for the years 2001, 2008, and 2010. The Table shows the various categories in terms of dollars and as shares of the GDP, and it records the percentage rate of change of the several components between the different years. As is evident, revenues of the Federal government are mainly taxes, and the bulk of those taxes are collected on household incomes in the

[1] These estimates are illustrative and the authors' calculations. The ARRA involved many kinds of expenditure increases and tax reductions, each with its own multiplied impact on the GDP. Here we simplify the package and suppose that it involved $267b of an increase in spending on government purchases of goods and services and $533 of a reduction in taxes and/or increase in transfer payments. We assume a multiplier of 1 (minimum) to 2.5 (maximum) for the former expenditures and a multiplier of 0.4 to 1 for the latter reductions in net taxes. (These multipliers are in line with the CBO ranges.) To obtain an upper bound on the size of crowding out, we assume that private saving is not increased by the increase in interest rates or the expectations of future tax increases that are likely to accompany the fiscal stimulus and is affected only by changes in disposable income.

form of individuals' income taxes and the payroll tax for social insurance. In 2010, for example, almost 80 per cent of government revenue came from these two sources, with the individuals' income tax comprising the largest share. Federal government expenditure is divided into three categories: so-called mandatory, discretionary, and interest expenses. *Mandatory* expenditures arise from programs whose rules for eligibility and level of benefit are set by the Legislature and whose outlay in any particular year is determined by those rules rather than an explicit dollar allocation. These programs, also known as the "entitlements," include social security payments, payments for health insurance for the elderly (Medicare) and poor (eg, Medicaid), and various income support programs, such as unemployment compensation and food stamps. In recent years, mandatory expenditures have comprised about 60 per cent of all non-interest expenditures and are dominated by social security and Medicare. *Discretionary* expenditures are explicit dollar allocations voted by the Legislature each year. They include national defense and the many core functions of government (salaries of government officials and employees, education, environment, transportation, and so on). Foreign aid spending is also discretionary; at roughly 0.3 per cent of GDP, it is a tiny component of the budget, too small to show on its own. The discretionary expenditures comprise about 40 per cent of non-interest expense and are about equally divided between national defense and other uses. These other uses have been the battleground in Congress in recent months. As you can see from the table, these skirmishes over non-defense discretionary expenditures have been fought on a small battlefield, comprising only 4.5 per cent of the GDP and less than 18 per cent of all non-interest spending. The final spending category is *interest* on the national debt held by the public, which in 2010 was small in relation to the GDP (1.4 per cent) and total Federal expenditures (5.7 per cent). In apparent opposition to the increase over time in the national debt in relation to GDP, the Federal interest expense as a share of GDP (and as a share of total government spending) fell during the decade. This remarkable decline is a result of exceptionally low interest rates, by historical standards, paid by the US Treasury; and is a trend that surely will not continue.

Table 3 shows the growth rates from 2001 to 2008 in revenues, expenditures, and the GDP measured in current dollars. We see readily why a deficit emerged during this period, and that its sources were broad based: during this period, every important component of expenditure grew faster than did GDP, and every key component of revenue grew more slowly. However, a few of the budget lines stand out: defense and Medicare were the fastest growing expenditure categories, and the individual income tax (which normally would grow faster than GDP as people are pushed into higher tax brackets) grew less than half as rapidly as did GDP. The reasons for these trends are apparent: wars in Iraq and Afghanistan, an expensive new benefit for prescription drugs in Medicare (Part D), and significant reductions in tax rates in 2001 and 2003. These factors reveal a structural imbalance of roughly $400 billion (ie, the deterioration in the full employment budget balance) that happened just as the economy began its downward slide in 2008.

The changes from 2008 to 2010 shown in the Table (2008 compared to the estimated 2011 shows a similar story) reveals the impact of the recession: despite stagnant GDP, tax revenues declined sharply, and (although all expenditures continued to grow) income support such as unemployment

compensation and non-defense discretionary expenditures became the fastest growers. These changes evidence the automatic response of tax collections and income cushions to the recession and the explicit stimulus measures enacted by Congress. As we discussed in our first chapter, the CBO estimates the automatic cushion at roughly $350 billion, the difference between the actual deficit and the structural deficit. The stimulus measures (mainly ARRA plus the negative TARP adjustment) added about $300 billion to the deficit in 2010, some in discretionary spending but also in tax reductions and income support.

These three components – the structural imbalance that emerged since 2001, the automatic response to the downturn, and the policies enacted to deal with it – account for much of the deficit we experience today. But this logic also has a harsh message: a rollback of the stimulus measures and the eventual re-achievement of full employment (hoped for in 2015) cannot alone bring us back to sustainability. That structural imbalance is not going away. In addition, powerful forces are beginning to fuel growth in the mandatory expenditures in excess of GDP growth. The baby boomers are starting to retire and to live longer, and this aging of the population causes social security and Medicare payments under current benefit rules to grow more rapidly than GDP. Also, largely as a result of newly available treatments and technologies, and a system which offers few incentives for patients or providers to economize on costs, health care spending per individual has increased almost 2 per cent per year faster than the growth of income per person, for many years. If this trend continues, then the health-related mandatory expenditures will explode.

In March 2010 the CBO projected the Federal budget into the future under different scenarios. (Developments since that time make the situation even more daunting; see CBO March 2011.) These projections are highly speculative, for many reasons, but are non-partisan and the best available. In one scenario, which we will call the *status quo* (and the CBO labels "the alternative fiscal scenario"), the CBO tried to capture how the budget would evolve if we continue what we're doing, in the following senses: i) benefit rules for mandatory programs stay as-is, and health cost trends continue their historical pattern of increase; ii) our tax code resembles the system that was extended in December 2010, except that tax rates for the wealthy (+$250K for married) revert back to 2001 levels and estate taxes revert back to 2009 features; and iii) the stimulus measures are phased out and discretionary spending afterwards grows in lockstep with GDP. In addition, after 2020, the projections assume that the tax code will be adjusted to keep revenues a constant share of GDP. In Table 4, we show the *status quo* projected revenues and expenditures, as shares of GDP, in years 2020 and 2035. As well, we include the actual shares in the benchmark years covered in Table 3.

The message of the projection is sobering:

*over the next decade, debt will continue to rise in relation to GDP and reach roughly 87 per cent in 2020. The deficit at that time, approximately 6.6 per cent of GDP, will not stabilize the debt/GDP ratio into subsequent years. Even a brake on discretionary spending that holds expenditures other than those on interest, social security, and health to 2001 levels relative to GDP (saving about 1.3 per cent of GDP of deficit) is not nearly enough to achieve sustainability by that date.

*after 2020, social security and health obligations really kick in: in comparison to 2020, under the *status quo*, in 2035 these entitlements comprise 4.7 per cent more of the national product. Such developments, and interest on the accumulated borrowing, generate a deficit of almost 16 per cent of the GDP in 2035 and a debt/GDP ratio of 1.85. If we should reach that stage, achieving sustainability would require an increase in taxes, or cut in non-interest spending, on the order of 10 per cent of GDP. That is a very tall order.

What's more: these projections are an overly optimistic vision of the *status quo*, because government borrowing of this magnitude would lead to slower GDP growth, and bigger interest rates, than used in the exercise.

These projections are a reality check. We can't grow out of our debt problem: the projections already account for the effect of the economy's growth on tax collections and the elimination of temporary stimulus when full employment is achieved. Higher taxes on the rich will not in themselves solve the problem: these, too, are already in the model. A brake on non-defense discretionary spending (of which the much discussed "earmarks" and foreign aid are a tiny fraction) is not enough: at levels of non-defense discretionary spending typical of full employment (for example the 3.6 per cent of GDP in 2008), elimination of *every dollar* of these programs would not be enough in 2020 to bring about a sustainable deficit of less than 3 per cent of GDP. Rather, the projections make evident that the actions necessary for a sustainable budget path are precisely the options that no one wants to talk about: we MUST either i) reduce discretionary spending, *including defense*, as a share of GDP; and/or ii) collect more taxes, as a share of GDP, than we have in recent history; and/or iii) reform entitlements, especially the national health insurance programs.

Indeed, any sensible and successful deficit reduction plan that we can imagine will involve a dose of all three of these options. Ideally, we would cut spending on programs with the lowest future payoffs and raise taxes in a way that induces the least harm. Benefit cost analysis can help guide us here, but people will likely disagree on the relative value of programs and relative harm caused by various taxes. The political compromises needed to bring about an agreement require that all sides give up something. A plan cannot be successful unless it is regarded as fair. This simply reflects political reality: a majority of Americans will support necessarily painful deficit reduction only if it believes the sacrifice is shared. But also, most economists would view a broad-based approach as sensible. In everyday life, when we reduce our spending, we typically cut back on *all* expenditures. If we, as individuals, were faced with the choice of reducing some government programs (like national defense or aid to farmers or access to our national parks or aid to the unemployed or hungry) or reducing our own consumption by higher taxes, likely we would choose a bit of both. If we, as individuals, were faced with the choice of giving up spending when we are young (social security taxes) and/or when we are old (social security benefits, Medicare), likely we would do a bit of both. Writ large in the budget, these are the ways deficit reduction affects us, as individuals. Most of us, upon reflection, would opt for the same broad-based reduction in all forms of our consumption as we do in everyday life.

The need for shared sacrifice is evident in the recommendations of two prestigious and much-publicized bipartisan budget plans, one proposed by the National Committee on Fiscal Responsibility and Reform, chaired by Erskine Bowles and Senator Alan Simpson (B&S, Dec 2010), and the other proposed by the Debt Reduction Task Force, chaired by Senator Pete Dominici and Dr. Alice Rivlin (D&R, Nov 2010). These groups had to make decisions on many dimensions, including when, and at what level of indebtedness, the US should reach sustainability; what areas of the budget should bear the burden of getting there; and how the necessary policies should be phased in over time. It is therefore striking that, in broad outline, the recommendations have much in common. In particular:

*each recommends a target debt/GDP ratio of approximately 60 per cent, and a deficit (of roughly 3-2 per cent of GDP) that at least sustains that ratio, by 2020;

*to support the fragile recovery, each recommends no significant deficit reduction (indeed, no reductions in dollar discretionary expenditures) until 2013. Under both plans, debt relative to GDP would peak at approximately 70 per cent in that year, and in that year deficits for the first time would be small enough to eat away at that ratio;

*both plans would employ the full range of budgetary remedies. Both would roll back discretionary spending, on both defense and domestic programs, as a share of GDP, to at most 2001 standards. Both would increase total tax collections as a share of GDP relative to the *status quo* while simultaneously reducing marginal tax rates and simplifying the tax code by eliminating, or by targeting better, many of the deductions and credits currently allowed. Each would find savings in social security benefits by increased means-testing, by calibrating payments and retirement age to increased life expectancy, and by indexing to a cost of living measure that is more accurate that used currently. Each would attempt to control the growth of healthcare costs by introducing incentives for providers and users to economize and by lowering expenses, such as those of prescription drugs and malpractice. Both plans acknowledge that expenditure/gdp must rise over historical averages in response to our aging population, rising health costs, increased homeland security needs, and higher interest expenses;

*both plans envision modest deficit reduction from entitlement reform 2012-2020 (because of the complexity of reform and the need to fulfill commitments to today's retired) but regard prompt reforms as essential to long run sustainability.

To be sure: the plans differ in the details of their hundreds of recommended policy changes. The tax and entitlement reforms are controversial and complex and will be debated at length. But the common message of these two eminent and bi-partisan groups captures a middle ground about the size of necessary adjustments that many economists would endorse.

These plans also illustrate a key difference in perspectives: the extent to which sustainability should be achieved through tax increases or expenditure reductions. The B&S proposal would achieve roughly 2/3 of its deficit reduction through reductions in government programs and 1/3 through increases in tax revenues (relative to the *status quo*). The R&D proposal would achieve a similar deficit reduction with a lesser reliance on program cuts: expenditure reductions and tax revenue increases would each

contribute to roughly half of the goal. In both plans, taxes and spending would reach historically high proportions of GDP in 2020 (and beyond). B&S recommend a tax share of 20.6 per cent in 2020, would reduce discretionary expenditures sharply (to 5.3 per cent of GDP in 2020, and a share of "other" of 7.3 per cent), and would hold overall spending to 21.6 per cent of GDP at the end of the decade. In contrast, D&R recommend the larger tax revenues (21.3 per cent of GDP in 2020, in part achieved through a national sales tax) and, correspondingly, a smaller reduction in discretionary expenditures relative to the *status quo*, and a larger overall spending share of 23 per cent in 2020.

Does the balance of spending and taxes matter? The R&D plan would provide more stimulus to an economy which is expected to have excessive unemployment until 2015, because expenditure reductions diminish aggregate demand more than do tax increases. The B&S plan cuts domestic discretionary expenditures so deeply that government investments are likely to be reduced. However, the B&S template will be favored by those who emphasize the inefficiencies created by taxes and who judge some government programs as less essential than the private consumption they replace.

These issues, and the giant complexities of reforming our tax code and mode of health care provision, are the legitimate focus of the debate over our deficit that must take place over the next two years. The sooner debate can occupy this middle ground (rather than the extremes of no change in entitlements or to tax revenues) the better.

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Table 1 Federal Revenue, Expenditure, and Deficits as Percent of GDP

	GDP	Potential GDP	GDP gap	Revenue /GDP	Expenditure /GDP	Deficit /GDP	Structural Deficit /potential GDP	Pubic Debt/ GDP
1971	1,080	1,094	-1.32	17.3	19.5	-2.13	-1.7	28.1
1972	1,177	1,181	-0.39	17.6	19.6	-1.99	-1.9	27.4
1973	1,311	1,272	3.04	17.6	18.7	-1.14	-2.2	26.0
1974	1,438	1,411	1.92	18.3	18.7	-1.49	-1.2	23.9
1975	1,560	1,617	-3.50	17.9	21.3	-3.41	-2.2	25.3
1976	1,738	1,791	-2.93	17.1	21.4	-4.24	-2.9	27.5
1977	1,974	2,000	-1.35	18.0	20.7	-2.72	-2.1	27.8
1978	2,217	2,209	0.39	18.0	20.7	-2.67	-2.8	27.4
1979	2,501	2,473	1.14	18.5	20.2	-1.63	-2.1	25.6
1980	2,724	2,771	-1.69	19.0	21.7	-2.71	-2.1	26.1
1981	3,057	3,113	-1.81	19.6	22.2	-2.58	-1.7	25.8
1982	3,224	3,419	-5.71	19.2	23.1	-3.97	-1.8	28.7
1983	3,441	3,677	-6.43	17.5	23.5	-6.04	-3.3	33.1
1984	3,844	3,926	-2.09	17.3	22.2	-4.82	-3.9	34.0
1985	4,146	4,187	-0.97	17.7	22.8	-5.12	-4.7	36.4
1986	4,404	4,428	-0.54	17.5	22.5	-5.02	-4.7	39.5
1987	4,651	4,690	-0.83	18.4	21.6	-3.22	-2.9	40.6
1988	5,008	4,990	0.37	18.2	21.3	-3.10	-3.2	41.0
1989	5,399	5,342	1.07	18.4	21.2	-2.83	-3.3	40.6
1990	5,734	5,706	0.49	18.0	21.9	-3.85	-4.1	42.1
1991	5,930	6,091	-2.64	17.8	22.3	-4.54	-3.5	45.3
1992	6,242	6,414	-2.68	17.5	22.1	-4.65	-3.4	48.1
1993	6,587	6,729	-2.10	17.5	21.4	-3.87	-2.9	49.3
1994	6,977	7,062	-1.21	18.0	21.0	-2.91	-2.3	49.2
1995	7,341	7,423	-1.10	18.4	20.6	-2.23	-1.8	49.1
1996	7,718	7,796	-1.00	18.8	20.2	-1.39	-0.9	48.4
1997	8,212	8,192	0.24	19.2	19.5	-0.27	-0.3	45.9
1998	8,663	8,575	1.03	19.9	19.1	0.80	0.4	43.0
1999	9,208	8,994	2.39	19.8	18.5	1.36	0.4	39.4
2000	9,821	9,503	3.35	20.6	18.2	2.41	1.0	34.7
2001	10,225	10,086	1.39	19.5	18.2	1.25	0.5	32.5
2002	10,544	10,602	-0.55	17.6	19.1	-1.50	-1.3	33.6
2003	10,980	11,149	-1.52	16.2	19.7	-3.44	-2.8	35.6
2004	11,686	11,733	-0.40	16.1	19.6	-3.53	-3.3	36.8
2005	12,446	12,398	0.39	17.3	19.9	-2.56	-2.7	36.9
2006	13,225	13,123	0.78	18.2	20.1	-1.88	-2.2	36.5
2007	13,892	13,851	0.29	18.5	19.6	-1.16	-1.3	36.2
2008	14,394	14,513	-0.82	17.5	20.7	-3.19	-2.9	40.3
2009	14,098	15,020	-6.14	14.9	25.0	-10.02	-7.3	53.5
2010	14,513	15,397	-5.74	14.9	23.8	-8.92	-6.1	62.1

Source: "Budget and Economic Outlook: Fiscal Years 2011-2021," CBO, January 2011. GDP and Potential GDP in current dollars; the GDP gap is the percentage difference between actual output and potential output; and the other columns are percentages of GDP.

Table 2: International Comparisons

	Debt /GDP	Deficit /GDP	Structural Deficit /potential GDP	GDP gap	Revenues /GDP
Canada	30.6	-5.2	-3.3	-3.1	38.0
France	71.4	-7.8	-5.0	-3.7	48.4
Germany	57.3	-3.8	-2.0	-3.3	43.2
Greece	103.2	-10.7	-11.5	1.5	38.2
Italy	97.9	-5.2	-3.7	-3.3	46.3
Ireland	45.8	-16.1	-9.0	-6.4	34.9
Japan	116.2	-9.9	-7.4	-6.0	29.8
Portugal	75.5	-8.3	-7.1	-1.5	39.6
UK	64.9	-10.2	-8.1	-3.4	36.7
US	62.3	-12.0	-7.6	-5.5	30.3

Source: IMF "World Economic Outlook Database," October, 2010;
all numbers are percentages of GDP; the GDP gap is the percentage difference between actual output and potential output; revenues are government tax revenues. Government refers to all levels of government, not just Federal.

Table 3: Components of Spending and Revenues

	2001	2008	2010	Percent change 01-08	Percent change 08-10	2001/GDP	2008/GDP	2010/GDP
Revenues								
Individual Income Tax	994.3	1145.7	898.5	13.2	-27.5	9.7	8.0	6.2
Social Security + Medicare Taxes	694	890.9	864.8	22.1	-3.0	6.8	6.2	6.0
Total	1991.1	2524	2161.7	21.1	-16.8	19.4	17.5	14.9
Mandatory Spending								
Social Security	429.4	612.1	700.7	29.8	12.6	4.2	4.3	4.8
Medicare	237.9	456	520.4	47.8	12.4	2.3	3.2	3.6
Medicaid	129.4	201.4	272.8	35.7	26.2	1.3	1.4	1.9
Unemployment Insurance	143.1	260.7	437.7	45.1	40.4	1.4	1.8	3.0
Total	1007.6	1594.8	1909.6	36.8	16.5	9.8	11.1	13.2
Non-Mandatory								
Defense	306.1	612.4	689.1	50.0	11.1	3.0	4.3	4.7
Non-defense	342.9	522.5	660.1	34.4	20.8	3.3	3.6	4.5
Total	649	1134.9	1349.2	42.8	15.9	6.3	7.9	9.3
Interest	206.2	252.8	196.9	18.4	-28.4	2.0	1.8	1.4
Deficit	128.2	-458.6	-1294.1			1.3	-3.2	-8.9
Structural Deficit	49	-425	-935			0.5	-3.0	-6.4
GDP	10255	14394	14513	28.8	0.8			
Inflation				22.0	1.0			

Source: historical data in CBO "The Budget and Economic Outlook: Fiscal Years 2011 to 2021," January, 2011.
The first three columns are in current dollars; the last three are percentages of GDP.

TABLE 4: Actual and Projected Spending, Revenues and Deficit s as Percent of GDP

	2001	2008	2010	2020	2035
Federal Revenues	19.4	17.5	14.9	19.3	19.3
Total Non-Interest Spending	16.1	18.9	22.4	22.1	26.5
Social Security	4.2	4.3	4.8	5.2	6.2
Medicare	2.3	3.2	3.6	4.3	7
Medicaid/other health	1.3	1.4	1.9	2.9	3.9
Other	8.4	10.1	12.1	9.7	9.3
Interest Spending	2	1.8	1.4	3.8	8.7
Deficit (positive is surplus)	1.3	-3.2	-8.9	-6.6	-15.9
Debt	32.5	40.3	62.1	87	185

Source: CBO, "The Long Term Budget Outlook," June, 2010; and CBO "The Budget and Economic Outlook: Fiscal Years 2011 to 2021," January, 2011.

Figures for 2001, 2008, and 2010 are actuals but 2020 and 2035 are the CBO's "Alternative Fiscal Scenario" -- our version of an expected status quo path.

Figure 1

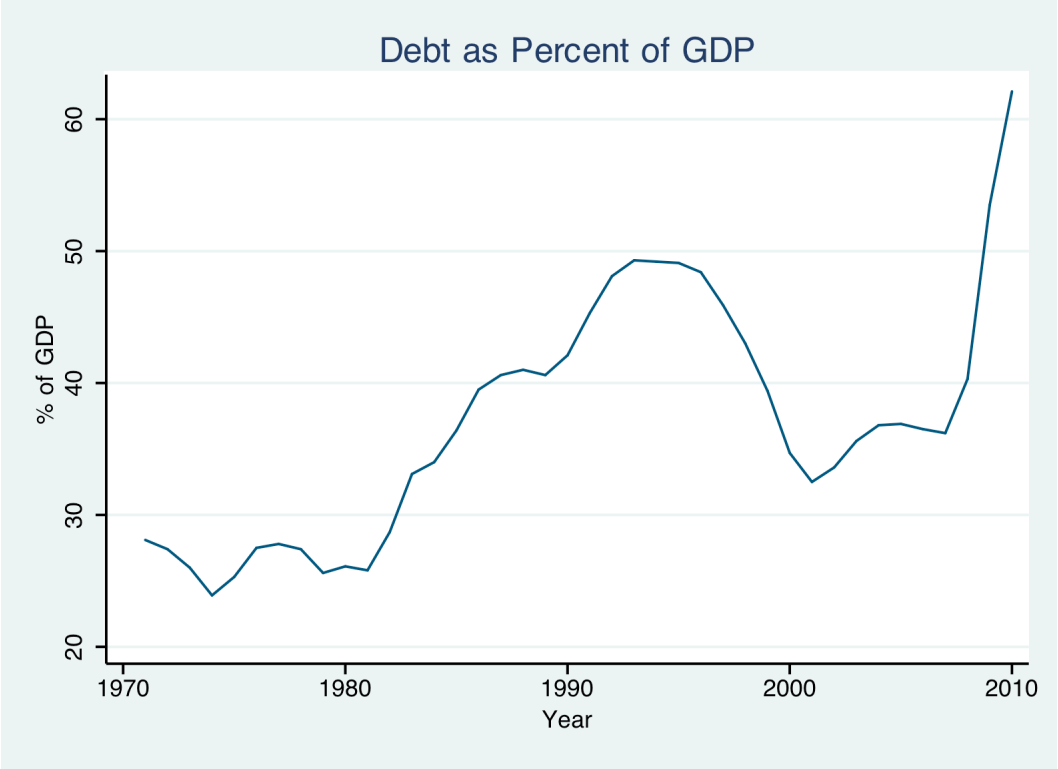
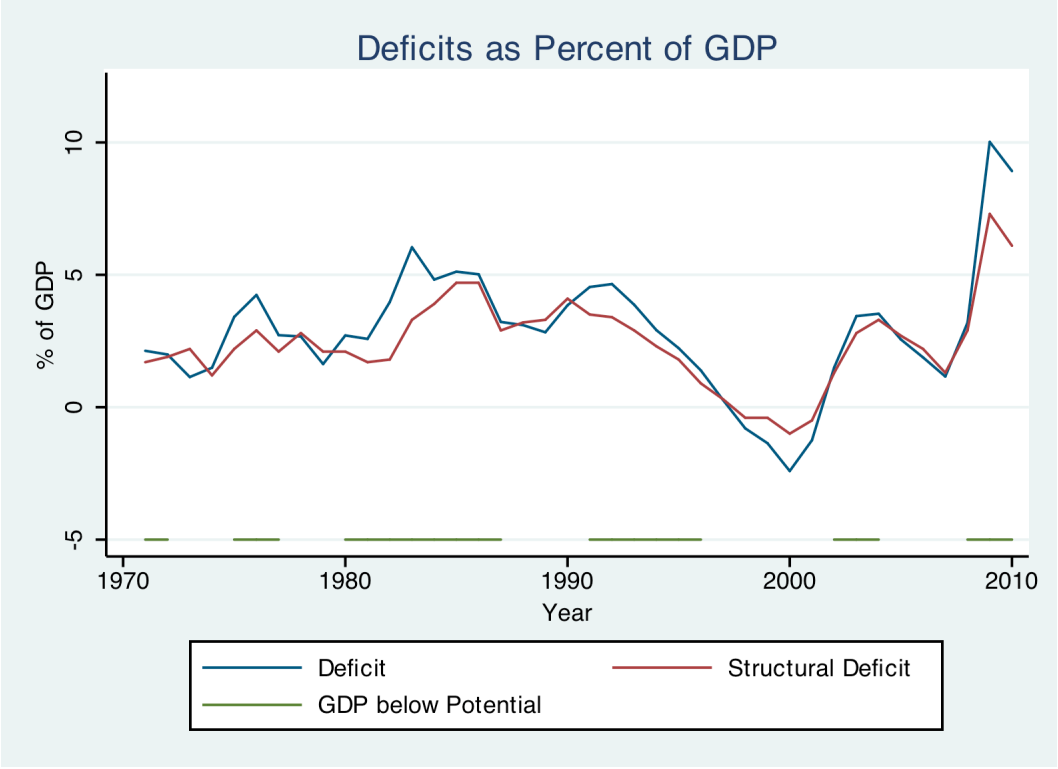
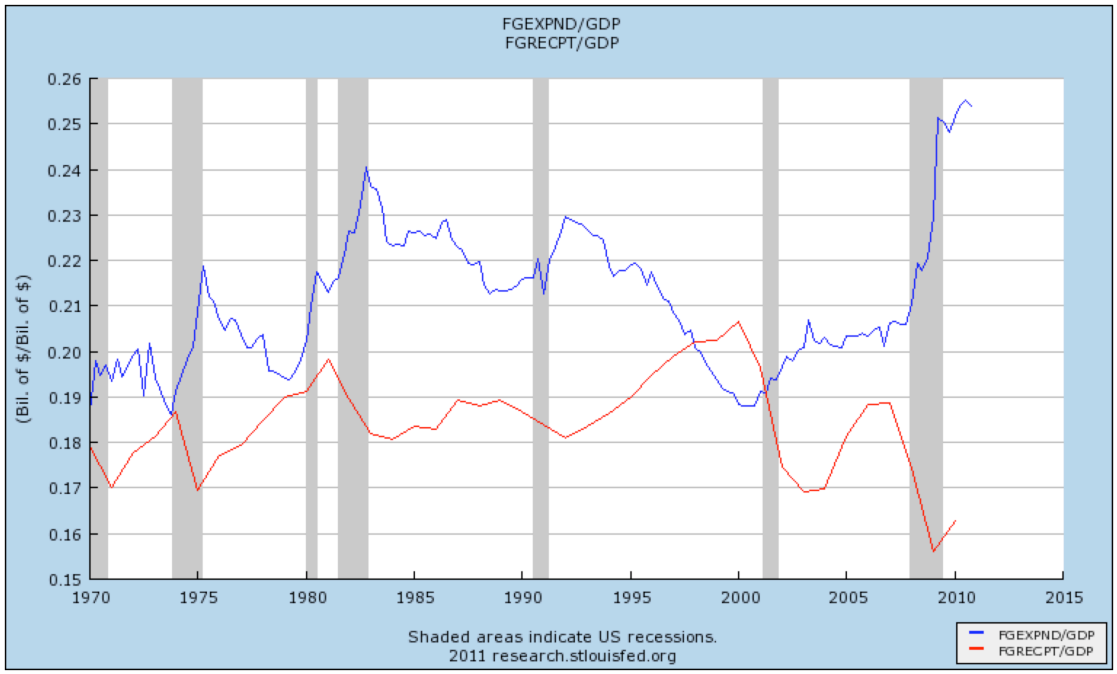


Figure 2



Source: authors graph from CBO data in
"Budget and Economic Outlook: Fiscal Years 2011-2021," CBO, January 2011.

Figure 3 Federal Revenues and Spending as Proportion of GDP



Note: blue line is federal expenditure as proportion of GDP; red line is federal revenues as proportion of GDP. Source: Federal Reserve of St Louis FRED data. http://research.stlouisfed.org/fred2/