Budget Deficits and National Debt

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I am delighted to be here in Mumbai and honored by your invitation to give this year's L. K. Jha Memorial Lecture. I first came to India only about eight years ago and have been coming to India once each year for the past five years. Even in that short period of time, I have seen significant improvements in the Indian economy and now hear about important structural changes that are being made or contemplated. I am very optimistic about the Indian economy. Although there are a great many reforms still to be done, I believe that there is a spirit of change in India now that will bring great progress in the future.

One of the major problems facing the Indian economy is your large budget deficit and the resulting high level of national debt. As you know, the budget deficit of the central government is about six percent of GDP and this rises to about 10 percent of GDP if the deficits of subnational governments are included. The combined government debt is now close to 75 percent of GDP. It is with these worrying figures in mind that I decided to speak today about the general problem of budget deficits and national debt.

India is certainly not alone in having budget deficits that are too high. France and Germany now have deficits that violate the European Growth and Stability Pact. In the United States, the budget deficit has risen from 1.5 percent of GDP in 2002 to 3.7 percent in 2003 and a projected 4.3 percent next year. Japan has the largest budget deficit among the major industrial countries at 8 percent of GDP. And among the emerging market economies, the average ratio of budget deficit to GDP is now about four percent.

I will not be so foolish as to suggest specific policies by which India can reduce its budget deficit. I know how difficult it is to prescribe policies in my own country. The political and economic complexities of India make it even more difficult for an outsider to offer specific suggestions here.

What I will do instead is to discuss the adverse effects of large budget deficits in general and the way in which such deficits can become unsustainable, leading to national insolvency and a debt default. I will consider the arguments that have been made by those academic economists over the years who have tried to justify a policy of large peacetime budget deficits. And I will consider in general terms the merits of different ways of reducing budget deficits.

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Large fiscal deficits have a variety of adverse consequences: reducing economic growth, lowering real incomes, and increasing the risk of financial and economic crises of the type that we recently witnessed in several countries of Asia and Latin America. Since I am here in a central bank, I should add that, under some circumstances, fiscal deficits can also lead to inflation. Even if a central bank prevents such inflationary consequences , the other adverse "real" effects cannot be avoided. And under some conditions that I will discuss later, budget deficits can lead to higher inflation despite the attempt of the central bank to pursue a sound monetary policy.

To get a sense of the magnitude of these effects, consider just the impact of India's recent deficits on capital formation and growth. If India did not have its current central government deficit of some 6 percent of GDP, the gross rate of capital formation could rise form 24 % of GDP to 30%. The net rate of investment would rise relatively more. Over the next decade, this greater rate of net capital accumulation would be enough to add nearly a full percentage point to the annual growth rate, raising India's level of GDP a decade from now by about 10 percent. Eliminating the state deficits as well as the deficit of the central government would substantially increase the size of this effect. While such radical deficit reduction may not be achievable in practice, these calculations indicate what could be accomplished with even smaller deficit reductions.

Unfortunately, it is easy to ignore budget deficits and postpone dealing with them because the adverse effects of budget deficits are rarely immediate. Fiscal deficits are like obesity. You can see your weight rising on the scale and notice that your clothing size is increasing, but there is no sense of urgency in dealing with the problem. That is so even though the long-term consequences of being overweight include an increased risk of a sudden heart attack as well as of various chronic conditions like diabetes. Like obesity, government deficits are the result of too much self-indulgent living as the government spends more than it collects in taxes. And, also like obesity, the more severe the problem, the harder it is to correct: the overweight man has a harder time doing the exercise that could reduce his weight and the economy with a large deficit and debt is trapped by increasing interest payments that cause the deficit and debt to rise more quickly. I emphasize the analogy to stress the point that budget deficits need attention now even when their adverse effects may not be obvious.

Deficits and Debt Ratios

The appropriate size of the national debt, like the ideal weight for an individual, is a complex question. But basic common sense tells us that the ratio of debt to GDP should not be allowed to rise year after year. I may not know my optimal weight but I know that I am in trouble if I am gaining five pounds a year, or even three pounds a year. In fiscal terms, a country should recognize that it is in trouble if it sees its ratio of debt to GDP rising year after year.

There is therefore nothing arcane about the appropriate standard of a sound fiscal policy. The basic rule is that government revenue must exceed government non-

interest outlays. The excess of revenue over non-interest outlays must be sufficient to finance enough of the interest payments on the public debt to avoid a rising ratio of debt to GDP.

To make this operational, it is necessary to be clear about the definition of the budget deficit and about the role that the rate of interest on the national debt plays in determining the debt dynamics.

The budget deficit is traditionally defined as the difference between total government outlays, including the interest on the national debt, and the government's revenue receipts. A more complete definition of the deficit is that it is the difference between the size of the government debt at the end of the year and the corresponding size of the debt one year earlier. These two are equivalent if the government debt is defined as the stock of outstanding bonds. A more general definition of the government debt, however, would include the value of off-budget liabilities like future social security pensions and such contingent liabilities as the cost of dealing with insolvent banks and money-losing state enterprises. Unfortunately, the available statistics on debt and deficits generally ignore these broader considerations. Although I will therefore not present data on this broader concept of the national debt, everything that I say today about deficits and debt should be interpreted in this larger context.

A budget deficit implies that the national debt is increasing. But since the GDP is also rising, the ratio of the national debt to GDP may or may not be increasing. That depends on whether the growth rate of the national debt is more than or less than the growth rate of GDP. A continually increasing ratio of debt to GDP runs the risk that the debt will get on an unsustainable path leading to national insolvency. Even if the debt ratio is not explosive in this way, a high ratio of debt to GDP has serious adverse consequences. It is important therefore to understand what drives the ratio of debt to GDP and, if it is converging to some equilibrium level, what determines that level.

To do so it is useful to distinguish the standard budget deficit from the primary budget deficit. The primary deficit is the standard deficit minus the interest on the government debt. Equivalently, as traditionally measured, the primary deficit is government non-interest outlays minus total revenues.

To be more explicit, the total or standard deficit can be written as **G + i * Debt - T** where G is noninterest government outlays, i is the interest rate on the government debt, and T is taxes and other government revenue. The primary deficit is then **G - T.**

With this notation, it can be shown that the change in the ratio of debt to GDP can be written as

$$\mathbf{D\{\ Debt / GDP\ \} = [\ G - T\ ] / GDP + \{\ i\ - [\ (D\ GDP\ )/\ GDP]\ \}(\ Debt / GDP)}$$

i.e., as the sum of the primary deficit per dollar of GDP plus the difference between the interest rate and the growth rate of GDP (**D GDP)/ GDP)** multiplied by the initial ratio of debt to GDP.

Although I have expressed this relation in terms of the nominal interest rate and the nominal growth rate, the same rule holds if we replace the nominal interest rate with the real interest rate (i minus the inflation rate) and the nominal growth rate with the real growth rate ((D GDP)/ GDP minus the inflation rate).

This equation tells us that the ratio of debt to GDP will unambiguously rise if there is a primary deficit (i.e., if government non-interest spending exceeds revenue, G - T greater than zero) and if the interest rate on the national debt exceeds the growth rate of GDP. The logic of this is clear. The primary deficit adds to the national debt and the positive difference between the interest rate and the growth rate of GDP means that the interest payments alone cause the debt to rise faster than GDP.

To reduce the ratio of debt to GDP there must be either a primary surplus (i.e., revenue must exceed noninterest outlays) or the economy must grow faster than the rate of interest, or both. If only one of those conditions holds, it must be large enough to outweigh the adverse effect of the other.

The relation between the interest rate and the GDP growth rate varies from time to time and from country to country. In the United States over the past five years nominal GDP grew at an annual rate of 4.7 percent while the implicit interest rate on the government debt was 7.1 percent. Over those same five years, the U.S. also had a primary surplus of 3.2 percent of GDP. With an average debt to GDP ratio of 40 percent, the ratio of debt to GDP declined by about 2 percent per year, from 0.45 in 1997 to 0.34 in 2002.

The future may not be as favorable. Recent calculations by the official U.S. Congressional Budget Office based on plausible policy assumptions imply that the primary deficit could average about 0.8 percent of GDP over the next five years if the economy grows at a moderate rate of 3 percent a year. Over the same five years, the Congressional Budget Office estimates that the rate of GDP growth will exceed the interest rate by 0.7 percent. Combining these figures with the initial ratio of debt to GDP implies that the debt to GDP ratio would rise from 39.6 percent of GDP at the end of 2004 to 42.9 percent at the end of 2009. Policy actions could of course reduce that primary deficit. And faster economic growth would reduce the primary deficit (by increasing tax revenue) and could cause the interest rate to be smaller than the growth rate, further reducing the debt to GDP ratio. Even a relatively small increase in the growth rate could prevent the rise in the debt to GDP ratio.

What about India? In India in recent years the primary deficits have been above 1.5 percent of GDP and the implicit rate of interest on the national debt has exceeded the nominal growth rate of GDP by more than three percentage points. The ratio of the

central government debt to GDP was about 60 percent on average over these years. Combining these figures in the way implied by the basic equation implies that the ratio of debt to GDP will rise at about three percent per year. That is what was happening until recently. The debt to GDP ratio rose from 54 percent in 2000-01 to 65 percent in 2003-04. That's the bad news. The good news is that cutting the deficit, and therefore the primary deficit, by about 1.5 percent of GDP could prevent this rise in the debt to GDP ratio. I will return later to discuss approaches that any country must consider as it tries to reduce the primary deficit and the relative level of public debt.

Rising Debt Ratios

Experience around the world shows that a rising ratio of debt to GDP increases the probability of some kind of debt default or debt restructuring. The financial markets are forward looking and respond to that risk by insisting on higher interest rates to induce investors to hold government bonds. But those higher interest rate cause the debt to grow even faster. It is in that way that high debt ratios can become unstable without any increase in the primary deficit.

While an increase in the debt ratio can in principle be reversed, it becomes harder to do so as the interest rate rises, accelerating the growth of the debt and decreasing the growth of GDP. A continuing rise in the ratio of debt to GDP is a path to insolvency and economic crisis. But even a stable but high ratio of debt to GDP has serious adverse effects on the economy by crowding out private capital formation and imposing a higher tax burden to service the debt.

What determines the stable level of the debt to GDP ratio? The basic equation for the growth of the debt to GDP ratio implies that there is no change in the ratio when the primary deficit as a fraction of GDP is equal to the product of the debt to GDP ratio and the difference between the interest rate and growth rate:

$$(G - T) / GDP = [\Delta GDP / GDP - i] \ (Debt/GDP)$$

This implies that a stable ratio of debt to GDP must satisfy

$$(Debt/GDP) = \{(G - T) / GDP\} / [(\Delta GDP / GDP) - i]$$

For example, a primary deficit equal to one percent of GDP and a growth rate that exceeds the interest rate by 2 percentage points, will eventually produce a debt to GDP ratio of 50 percent. Doubling the primary deficit would cause the equilibrium debt ratio to double as well. But even with no change in the primary deficit, a fall in the difference between the growth rate and the interest rate from 2 percentage points to 1 percentage point, would also cause the debt ratio to double.

It is clear from this arithmetic that it is very easy for an economy to shift from a stable debt ratio at a low level to one at a substantially higher level in response to a

relatively small change in government spending, taxes, interest rates or economic growth.

Pro-deficit Economic Arguments

Budget deficits and debt ratios have not always been as high as they are now. And while deficits during major wars were common, peacetime deficits were unusual. In the United States, the entire national debt, including the substantial debt incurred during the Civil War, was fully paid off by a series of surpluses in the latter part of the 19th century.

In retrospect, it is quite remarkable that the political process supported the opposition to budget deficits and national debt for such a long time. Without a strong intellectual and moral opposition to deficits, powerful populist political pressures can lead to large budget deficits. Budget deficits are potentially popular because they allow higher levels of government spending and lower levels of taxation. Deficits shift the fiscal cost to future generations that are not yet voters. And deficits impose burdens on the economy that, unlike the very tangible benefits of more spending and lower taxes, are not directly visible to current voters.

It is unfortunate therefore that, starting with the 1940s, economists developed a series of different arguments that encouraged the political process to accept larger and larger peacetime deficits. These analyses started with simple Keynesian arguments and were followed by new theories of economic growth, theories of household saving behavior, and models of the global capital markets. The arguments were intellectually quite different from each other but they all lead to the same conclusion: that budget deficits in peacetime were not a problem for the economy.

The effect of these arguments on political behavior were, of course, not immediate. Although American economists first made their case for deficits in the 1940s, the resistance to peacetime deficits remained in the United States for quite some time. The nominal size of the national debt remained essentially unchanged between 1945 and 1970, causing the ratio of debt to GDP to fall from 100 percent in 1945 to 28 percent in 1970. But then, within seven years, the debt doubled. It then doubled again in the next seven years, reaching 34 percent of GDP in 1984 and 40 percent in 1986.

The first attack on the conventional anti-deficit orthodoxy occurred as part of the Keynesian revolution of the 1940s. Keynesian economics taught that the depression of the 1930s in England, in the United States, and elsewhere was caused by excessive saving. Keynesian economists interpreted the economic recovery in the 1940s as the result of the large deficit spending in World War II. They feared that the end of the war would bring a return to the depression and therefore recommended a continuation of large budget deficits (and other anti-saving measures) in the post-war period.

The Keynesian economists who wanted to persuade political decision makers to accept the idea of large peacetime deficits had to deal with the long-held belief that peacetime budget deficits and the national debt are both imprudent and harmful. The traditional critics of budget deficits argued that, first, a national debt represents a burden on the economy and, second, that it is morally wrong to pass such a burden on to the next generation (unless the debt was used to finance something that benefitted the future generation – a construction project or a military victory.)

The Keynesian proponents of budget deficits made two counter arguments. First, they noted that the national debt is (or more accurately, was then) essentially all held domestically. From this they inferred that the debt cannot be a burden because "we only owe it to ourselves." Second, they argued that the spending that created deficits could not be a burden on future generations because the spending used up resources in the present and did not use any future resources.

Both arguments were eventually shown to be misleading. James Meade, the Cambridge economist, noted that even if the debt is owned internally, collecting the additional taxes to pay the interest on the debt involves a deadweight loss, i.e., a loss of real incomes that results from the distortions in economic behavior caused by the higher tax rates.

This deadweight loss is potentially quite substantial. For example, in the United States in the second half of the 1990s, the interest paid on the federal debt averaged 34 percent of total personal income tax revenue. If the debt did not exist, the personal taxes could have been 34 percent lower. Equivalently, the need to pay the interest raised the taxes by 50 percent of what they could otherwise have been. If this represents an across the board rise in all tax rates, the effect would be to more than double the deadweight loss that the personal income tax would otherwise imply.[1] So even if we only "owe it to ourselves", the national debt would still involve a very large burden.

Franco Modigliani corrected the second of the original Keynesian arguments, i.e., that the deficit doesn't involve any burden on future generations. He pointed out that the resources that are used when the deficit is created – either by government spending or by tax cuts that lead to consumer spending – could otherwise have been invested in the capital stock which would produce increased output for future

[1]Since the deadweight loss of the tax is proportional to the square of the marginal tax rate, a 50 per cent increase in all marginal tax rates leads to a more than doubling of the deadweight loss. Even if one takes the view that only the real interest payments matter (because the government can borrow the rest without increasing the real size of the national debt), this would only lower the share of the interest payments in national debt to about 22 percent, implying a rise in the deadweight loss of the tax by more than 60 percent.

generations. Equivalently, government borrowing crowds out the private borrowing that would otherwise be available to finance additions to the private capital stock.

Although the Meade and Modigliani analyses removed professional economic support for the early Keynesian arguments that deficits involve no burden, the 1960s saw a new kind of argument that budget deficits are not important. The new argument accepted that budget deficits reduce national saving but rejected the traditional view that a lower rate of saving would reduce the rate of economic growth. The new neoclassical theory of economic growth implied that the national rate of saving does not affect the long-run rate of growth. According to this new theory, budget deficits reduce the national saving rate but that does not change the long-term rate of growth.

This conclusion ran counter to earlier analyses that emphasized that savings increased the rate of growth by increasing the amount of capital per worker. The reason for the new conclusion was the recognition that the higher capital intensity of production that resulted from a higher saving rate would eventually require an even higher saving rate to maintain the increased rate of growth. With no further increase in the net saving rate, the rate of growth of aggregate income would eventually converge back to the sum of the growth rates of population and productivity.

Although the new theory was technically correct, it was also misleading in focusing on the very very long run. With reasonable economic parameters, a rise in the saving rate could actually raise the growth rate by a significant amount for several decades. Moreover, even as the growth rate returned to its initial value, the level of real per capita income would remain permanently higher. With time, these technical aspects of the neoclassical analysis became understood among economists. But for at least a generation of economists who had grown up with the neoclassical growth models, there remained a residual sense that a higher saving rate is not the path to increased growth and , even more incorrectly, to higher real incomes.

It is of course difficult to know how influential a change in professional economic thinking is in changing economic policy. It is my judgement that the general acceptance by mainstream economists of the notion that budget deficits do not reduce long-term growth played an important role in decreasing the opposition to large peacetime budget deficits. This was reinforced in the 1960s by the widespread professional acceptance of the original Phillips curve theory that implied that an expansionary fiscal policy could permanently reduce the rate of unemployment if the economy accepts a permanently higher rate of inflation. With the additional view that inflation had at most a derisively small economic cost (the “shoeleather” costs of households making extra trips to the bank) and might actually increase productivity (by encouraging the replacement of cash balances in households’ portfolios with claims on real capital), the case for budget deficits seemed quite compelling.

By the late 1970s the economics profession was coming to reject all of these arguments. A higher saving rate was seen as important for growth and for raising real

incomes, the long-run Phillips curve was discredited, and the high rate of inflation in the 1970s was recognized as a serious problem. But the 1980s brought yet another example of the "deficits don't matter" argument, the so-called Ricardian-equivalence proposition. Here the argument is that budget deficits do not change national saving because individuals increase their personal saving to offset exactly the rise in the budget deficit.

The key assumption of the Ricardian-equivalence model is that successive generations are linked by an operative bequest motive. If I plan to bequeath some amount of money to my children and the government cuts my taxes (or gives me additional benefits through government spending) while increasing the future taxes that will have to be paid by my children, I will offset this government action by increasing my saving to keep my real income and the real incomes of my children unchanged. While this seems plausible enough once the premise of an operative bequest motive is accepted, there are so few planned bequests that this is not empirically significant. The absence of significant planned bequests is not surprising in an economy in which economic growth raises the incomes of future generations so that even an altruistic parent sees no need to reduce his own consumption in order to raise the consumption of his adult children after he has died. By now many, I would think most, economists have recognized the practical irrelevance of the Ricardian-equivalence theory and concluded that budget deficits do reduce national saving.

There is yet one more line of argument that implies that budget deficits are not as important in the capital accumulation process as they might seem at first. A fully integrated global capital market implies that the domestic levels of investment, capital stock, and productivity in an economy do not depend on the domestic saving rate. Capital flows among countries to equate the real rate of return. A country with a high saving rate exports capital to the rest of the world and a country with a low saving rate imports capital. In this context, a large budget deficit that reduces national saving will not hamper domestic investment but will instead induce a capital inflow from abroad.

Although an integrated global capital market is a helpful analytic abstraction, it is not a description of the actual global capital market. Charles Horioka and I showed some years ago that persistent differences in national saving rates among industrial countries translates into persistent differences in investment as a share of GDP. The global capital market is surprisingly segmented, with about 80 percent of a sustained rise in incremental savings retained in the saving country. This finding has been replicated with more recent data and shown to hold for a wide range of developing as well as industrial countries. The implication is clear: a country that reduces its national saving by a large budget deficit will have a similar adverse effect on the its national investment rate.

In my judgement, the theoretical attempts over the past 60 years to minimize the impact of budget deficits on capital accumulation, on economic growth, and on real incomes have been unpersuasive. Deficits reduce national saving and capital

formation. That lowers the growth rate for a long period of time and permanently lowers the level of real income and the real standard of living. This adverse effect is reinforced by the deadweight loss that results from the need to raise substantial amounts of revenue to service the national debt.

Fiscal Policy vs Monetary Policy for Economic Stabilization

Economic analysis has thus come full circle back to the traditional case that sustained budget deficits in peacetime are harmful. This does not however deal with the original Keynesian contention that budget deficits can play a useful role in managing economic fluctuations.

Current thinking on that subject is much less supportive of discretionary fiscal policy than was true in the past. Although automatic stabilizers like unemployment insurance and income tax withholding which respond quickly to an economic downturn may be helpful, explicit discretionary policy is generally the wrong tool for demand management. Since most economic downturns are relatively short term – the average time from peak to trough in the U.S. has been only 10 months in the past seven recessions – it is difficult to provide a discretionary fiscal stimulus before the economy recovers. Attempts to use discretionary fiscal policy are hampered by lags in recognizing that a downturn has begun, by lags in designing stimulative legislation and getting it enacted, and potentially by more lags before households and firms respond to the fiscal stimulus.

In contrast, monetary policy is a much more flexible tool. Interest rates and money growth rates can be changed frequently and can reverse direction. A potentially countercyclical monetary policy within a framework committed to price stability is therefore a preferred strategy. Fiscal policy is generally best designed to provide a long-term context that removes distortions and encourages saving, risk-taking, and individual effort .

There are times, however , when expansionary monetary policy cannot be used because the interest rate is already at or very close to zero. This has been true in Japan for some time and has been true in the United States since the Federal Reserve cut the fed funds rate to one percent. Under such circumstances, an expansionary fiscal policy is an appropriate way to avoid continued stagnation or outright economic decline. I believe that was true of the recent use of expansionary fiscal policy to accelerate the U.S. economic recovery in 2003.

Price Inflation

I have until now commented only on the effects of fiscal policy on the real economy. What about inflation? What is the link between budget deficits and inflation?

Despite the general public view that budget deficits cause inflation, the reality is more complex. The impact of budget deficits on inflation depends on the economic conditions prevailing in the economy when the deficit rises, on the concurrent conduct of monetary policy, and on the structure of the government debt.

The conclusion that a substantial multi-year rise in the deficit need not cause an increase in inflation was clearly demonstrated in the United States during the first half of the 1980s. Between 1979 and 1985, the budget deficit rose from 2.7 percent of GDP to 5.1 percent of GDP and the national debt rose from 26 percent of GDP to 36 percent. Nevertheless, during those years, the GDP price inflation fell from 8.2 percent to 3.2 percent. Inflation fell despite the large budget deficits because the Federal Reserve had pursued a tough anti-inflationary monetary policy, and the unemployment rate rose from 5.8 percent in1979 to 9.7 percent in 1982 before declining to a still very high 7.2 per cent in 1985. The combination of substantial economic slack and a clearly anti-inflationary monetary authority allowed inflation to come down despite very large budget deficits.

Not all countries are in a position to finance a large budget deficit without causing inflation. In particular, a government that cannot issue interest bearing debt and is forced to finance its deficit by increasing the stock of money is likely to find that a substantial budget deficit is very inflationary. Even a deficit financed by very short-term interest bearing debt that is a close substitute for currency will be inflationary. The key to avoiding inflation while financing a deficit is that the incremental debt must have a maturity of at least several years.

Even this is not enough to prevent inflation if the volume of the debt relative to GDP becomes too large. At some point, as the debt becomes larger and larger relative to GDP, the country finds itself on a path to insolvency, i.e., on a path to a point at which the present value of future non-interest government outlays exceeds the present value of future tax receipts. If this occurs, the debt cannot be repaid. The government must default on part of its debt or, equivalently, use inflation to reduce the real value of the debt. While such a default-through-inflation is not possible if the maturity of the debt is very short, it is a clear option when there is a large debt financed with medium-term and long-term bonds with fixed interest rates.

Financial and Economic Crises

In addition to the adverse effects of budget deficits on capital accumulation, economic growth, future tax rates, and inflation, budget deficits can also be the source of the kind of financial crises that were experienced in Latin America and south Asia in the past decade. This is particularly true when the budget deficit is financed by borrowing abroad in a different currency like the dollar or euro. A country that borrows dollars to finance its budget deficit runs the risk that an unwillingness of foreign lenders to keeping rolling over existing debt will cause a substantial decline in the exchange rate, leading to a financial crisis.

This is what happened in Thailand in 1998 when foreign lenders decided to stop rolling over Thai dollar obligations. They did so because the growing accumulation of foreign debts denominated in dollars raised doubts about the eventual ability of the government of Thailand and its private sector borrowers to be able to repay foreign obligations. When this happened, the exchange rate shifted from 25 bhat per dollar to about 50 bhat per dollar. Thai companies that owed dollars to foreign lenders or to domestic banks saw the value of their obligations double when measured in bhat. For many highly leveraged borrowers, the doubling of their debt meant bankruptcy. Thai banks that had made dollar loans to these borrowers were unable to collect but still owed dollars to foreign creditors, forcing the banks themselves into bankruptcy. With companies and banks in bankruptcy, the economic activity collapsed and the county suffered a severe crisis.

In an open economy with no capital account restrictions a rising ratio of government debt to GDP can lead to an economic and financial crisis even if the debt is not to foreign lenders and is not denominated in dollars. As the debt to GDP ratio rises, domestic individuals and businesses will seek ways to transfer funds abroad to invest in alterative assets in order to avoid the risks inherent in domestic banks and domestic bonds. This shift of funds can reduce the exchange rate, raising domestic interest rates and weakening domestic banks.

In short, while a high ratio of debt to GDP can do substantial damage to the economy, a debt to GDP ratio that is rising can signal fiscal insolvency and cause a financial and economic crisis.

What can be done?

What can be done to reduce the budget deficit, the ratio of debt to GDP, and the risk of insolvency? There are only three basic ways to reduce the fiscal deficit and one additional way to reduce the equilibrium ratio of debt to GDP and the risk that the debt ratio will reach an unstable level. The three ways to reduce the budget deficit are to cut non-interest government outlays, to increase tax or other revenue, and to reduce the rate of interest on the government debt. A faster rate of economic growth would also reduce the equilibrium ratio of debt to GDP and the risk of a shift to an unstable path of debt to GDP. Let me consider each of these options in turn.

Reducing non-interest outlays is always politically difficult but it is not impossible. Fortunately, what matters is not the absolute level of government outlays but the ratio of outlays to GDP. It is necessary therefore only to slow the growth of noninterest spending to less than the growth of GDP. Despite the difficult of doing this in a democracy, the United States did succeed in reducing the ratio of noninterest outlays to GDP during the eight years of the Ronald Regan presidency from 20.8 percent of GDP in 1980 to 19.4 percent of GDP in 1988. Nondefense discretionary spending – i.e., spending excluding defense and the so-called entitlements that are not subject to annual Congressional appropriations (like Social Security pensions, Medicare benefits, etc) – fell one-third from 4.7 percent of GDP in 1980 to 3.1 percent of GDP in 1988.

Spending reductions must of course be made program by program even if overall spending goals and limits help to achieve that aggregate spending reduction. In many emerging market countries, stopping support for money-losing state owned enterprises by imposing a hard budget constraint or by privatizing the entity can be a major source of spending reduction. The key to thinking about all forms of government expenditures is to recognize that the cost of providing a government outlay includes not only the direct outlay itself but also the deadweight loss associated with raising the revenue to pay for that outlay. That incremental deadweight loss depends on the means of financing the increased outlay. An increase in the income tax that distorts work behavior and the form of compensation or an increase in the budget deficit that reduces national saving can produce deadweight losses that are as large as the outlay itself, thus doubling the true cost of the outlay. Paying attention in this way to the total cost of spending may help to reduce the level of spending therefore that source of the deficit.

Raising revenue is the alternative way to reduce the primary deficit. The way in which that revenue is raised in very important. An increase in the tax on labor income or investment incomes can entail large deadweight losses. That form of tax can also reduce the rate of economic growth, raising the ratio of government outlays to GDP, increasing the equilibrium ratio of debt to GDP, and increasing the likelihood that the economy will shift to an unstable path.

It is far better to seek ways to increase collections with the existing law by reducing pure tax evasion. A second best strategy is to find ways to reduce loopholes that allow technically legal but unjustifiable tax avoidance. Finally, tax reforms that strengthen incentives can raise revenue by increasing output and by causing more output to be treated as taxable income rather than disguised in other nontaxable forms of compensation.

Taxes are not the only source of non-debt government revenue. Charges for government services can be an important source of revenue, especially in an economy like India where the government provides such a wide range of public services. Charging for some public services may also make it possible for private providers to offer these services, covering their own costs with charges and making a profit as well. But it is also important to recognize that raising charges for the use of public services can lead to the suboptimal use of those services. Tolls on highways and bridges can bring in revenue but may not be optimal if they discourage the use of otherwise uncongested facilities.

The optimal user charge is however more complicated than the traditional rule that the user charge should be no more than marginal cost. The traditional rule must be modified to recognize that all sources of revenue involve deadweight losses. The optimal charge for the use of an uncrowded bridge should not be the zero marginal cost but a positive price that makes the deadweight loss per rupee of revenue equal to the deadweight loss of generating revenue in other ways. For example, if raising an incremental rupee of revenue with the income or value added tax involves a deadweight loss of one-half rupee, the appropriate

charge for the uncrowded bridge should also be such that the toll generates a deadweight loss of one-half rupee per rupee of revenue.

Reducing the interest rate on the government debt is of course another way in principle to reduce the budget deficit and the equilibrium ratio of debt to GDP. Although the government cannot reduce that interest rate directly, it can do so indirectly by actions that make the debt less risky. A sound monetary policy that reduces inflation risk can reduce the real interest rate. Budget policies that reduce expected future primary deficits can also reduce the real rate of interest.

Finally, an increase in the rate of economic growth would lower the equilibrium ratio of debt to GDP and reduce the risk of an unstable rising ratio of debt to GDP. Since a lower primary deficit permits more investment and therefore faster economic growth, any policy that reduces the primary deficit brings an extra benefit in this way, creating a virtuous circle. There are of course many other things that a government can do to raise the rate of economic growth: increasing market flexibility, improving infrastructure, reducing regulations, and removing financial and legal barriers to individual entrepreneurship. India is clearly engaged in a wide variety of such pro-growth policies. If they are successful, they will reinforce sound fiscal management to achieve lower budget deficits and to reduce the relative size of the national debt. It is important that such pro-growth policies as well as explicit deficit reduction initiatives be adopted in the years ahead.

Thank you.