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Tax Cuts, the Business Cycle, and Economic Growth: A Macroeconomic Analysis

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Summary

With uncertainty surrounding the economic outlook, support has been mounting for an additional tax cut this year to stimulate the economy. Regardless of the implications of tax levels and structure for equity, fairness, intergenerational debt burden, and the role and size of government, any tax reduction will affect the macroeconomy. This report is limited to analyzing these macroeconomic effects.

Tax cuts have distinct short run and long run effects. Oftentimes, they are at odds with each other. In the short run, tax cuts that lead to a larger budget deficit increase aggregate demand and influence the business cycle if they are spent. If the economy has unused resources, then the tax cuts will likely raise growth in the short run. If the economy is operating at full capacity, most of the boost in aggregate demand would quickly be dissipated through higher interest rates, inflation, and a larger trade deficit. If a tax cut is meant to prevent a recession by providing a short-term stimulus, its efficacy should be judged by how much spending (or dissaving) it generates.

The efficacy of a tax cut that is meant to boost long-run growth should be judged by how much additional work, net saving, and investment it generates. Empirical estimates as to how much of a behavioral response can be expected when taxes are cut are inconclusive. These effects are likely to be negligible in the short run if the economy is in a recession. If the tax cuts lead to a larger budget deficit (i.e., less government saving), this would have a negative effect on national saving, reducing long run growth. The extent that national saving falls is determined by how much new private saving offsets the fall in government saving.

Since saving is the opposite of spending, it is difficult to craft a tax cut which can boost growth in both the short run and long run. If tax cuts to individuals (e.g., payroll or income tax reductions) are crafted to be spent to end a recession, then long run growth would suffer because of the reduction in national saving. Tax cuts aimed towards higher saving (e.g., a reduction in the tax on dividends) are unlikely to help counter a recession because they will generate little additional short-run spending. Furthermore, if a higher national saving rate is the aim of policy, the most straightforward way to accomplish it is to take steps to reduce the budget deficit by raising taxes or cutting government spending.

Theory suggests, and the past two decades arguably demonstrate, that monetary policy is a superior tool for ironing out the ebb and flow of the business cycle because of exchange rate effects and because it can be implemented more quickly. Most recessions have ended without the use of fiscal policy. At present, political concerns about the size of the budget deficit may prevent a tax cut from being large enough to significantly boost aggregate demand in a \$10 trillion economy. Moreover, with the expansionary policies already in place and the economy recovering, questions have been raised about the need for further fiscal expansion to stimulate aggregate demand. This report will be updated as events warrant.

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Tax Cuts, the Business Cycle, and Economic Growth: A Macroeconomic Analysis

With uncertainty surrounding the economic outlook, support has been mounting for an additional tax cut this year to stimulate the economy. While the level of taxation is a perennial issue because it bears ultimately on the size of the government relative to the private sector, three major arguments for tax reductions have emerged in the current dialogue. The first is the need to stimulate a more rapid rate of growth. While individuals making this argument disagree about what the government's fiscal position should be and ought to be in the long run, they are most concerned about the very near term. They argue that a good dose of fiscal stimulus is needed now to return the U.S. economy to full employment. Second, it is argued that in the long run tax cuts will boost the sustainable rate of growth by creating incentives to work, save, and invest. Third, it is argued that the presence of surpluses would encourage Congress to undertake "wasteful" spending and, therefore, a tax cut would help reduce government spending.¹

Regardless of which arguments propel the tax cut debate, all will have to face the fact that a tax cut would affect the macroeconomy. This report explores what these effects could be. It addresses only the first two of the arguments above. It does not address the questions of how the size of the budget deficit affects fiscal decisions. The discussion to follow breaks the analysis of the macroeconomic effects of tax reduction into two parts. The first concentrates on the short run, while the second discusses the longer run consequences. The short run effects concern how a tax cut would affect the business cycle. The long run effects concern how a tax cut would affect the long-term sustainable rate of growth. The analysis in this report will focus on the macroeconomic effects of a tax reduction, and a reduction in income taxes will be used for illustrative purposes. Thus, the discussion relates directly to one portion of the Administration's tax cut proposal, the acceleration of income tax reductions set out in EGTRRA (P.L.107-16).² While this analysis focuses on tax reductions because of topical interest and for analytical simplicity, the thrust of the analysis also

¹ A crucial simplifying assumption made in this analysis is that government spending and tax policy would remain the same with or without a tax cut. If this is not true, as the third argument suggests, then the conclusions reached in this report would be different.

² Other provisions of the Administration proposal include a reduction in dividend taxation and an acceleration of marriage tax penalty relief provisions of EGTRRA. For a full analysis, see CRS Report RL31597, *The Taxation of Dividend Income: An Overview and Economic Analysis*, by Gregg Esenwein and Jane Gravelle; and CRS Report RL30963, *Marriage Penalty Legislation: A Comparison of Alternative Proposals*, by Jane Gravelle. For an analysis of corporate tax cuts, see CRS Report RL31134, *Using Business Tax Cuts to Stimulate the Economy*, by Jane Gravelle.

applies to virtually any increase in government spending that is financed through a larger budget deficit.³

The Short Run Effects of Tax Reduction

The analysis of the short run effects of a tax cut will begin by assuming that the economy is characterized by full employment. This is done to focus on the variables that are thought to be important in gauging the ability of a fiscal stimulus to work in the short run. Later, this assumption will be modified and tax cuts will be analyzed in an economy characterized by unemployed resources.

A Fully Employed Economy.⁴ The effects of a tax reduction in the mainstream macroeconomic model (the Mundell-Fleming model) are straightforward. For most tax cuts to individuals, the cut in taxes would increase the disposable income of households. Households are assumed to follow historical patterns and spend much of this increase.⁵ This increase in household spending will directly and indirectly stimulate aggregate demand.⁶ The reaction of the economy to this stimulus will be felt in the markets for money, credit, and goods and services. In a fully employed economy, these markets must adjust to ration the available supply of output over the now enlarged and competing demands for it.

In the market for credit, expansionary fiscal policy is equivalent to a decrease in the national saving rate.⁷ Since less saving is available for private investment, real

³ For a comparison of tax cuts and government spending, see CRS Report RS21136, *Tax Reduction or Government Spending: Which Might Add More Stimulus to the Economy?*, by Marc Labonte.

⁴ Economists define full employment as the rate of unemployment consistent with a stable rate of inflation. Current estimates of this rate tend to cluster around 5%. By this measure, the current unemployment rate places the current level of gross domestic product below full employment. See U.S. Library of Congress, Congressional Research Service, *Inflation and Unemployment: What Is the Connection?* By Brian Cashell, CRS Report RL30391 and *Why Has the Unemployment Rate Fallen When Inflation Is Stable?*, by Marc Labonte, CRS Report RL30738.

⁵ By contrast, a reduction in the capital gains tax or the dividends tax is likely to lead to little expansion in aggregate spending because it encourages higher saving through certain types of assets (e.g., equities).

⁶ Similarly, an increase in government spending that was led to a larger budget deficit would directly and indirectly stimulate aggregate demand, with the only difference being that individuals would save some portion of the tax cut, diluting its stimulative effect, while the government would spend the entire increase in the deficit.

⁷ To see how increasing the deficit lowers national saving, consider the similarity between households and the government. The saving of the household sector is equal to its after tax income less the portion of that income that it uses to buy goods and services. Analogously, the saving of the government, or its budget surplus, is equal to its revenue less its outlays. When the revenue is reduced by a tax cut but government spending remains the same, the increase in the budget deficit must be financed by borrowing from the private sector's saving. Thus, national saving will decline unless households save the entire tax cut and do

(continued...)

or inflation adjusted interest rates must rise to keep the credit market in equilibrium. In the market for money, the increase in spending increases the demand for money. Assuming for analytical purposes that the supply of money does not increase (i.e., the posture of monetary policy is unchanged):

- Interest rates must rise to restore equilibrium between money demand and money supply.
- Interest sensitive spending would fall as a consequence. This would include spending on investment and consumer durables.
- The increase in aggregate demand, or spending, would cause the price level to rise (or the on-going inflation rate to rise) to bring the markets for goods and services back into equilibrium.
- This, in turn, would reduce the real value of the existing money holdings of the public.
- A fall in the real value of money holdings would also tend to reduce spending and put additional upward pressure on interest rates to restore balance between aggregate demand and the full employment level of supply.

To recap, unless households saved all of their increase in disposable income, the net effect of a tax cut to individuals is that a larger budget deficit would reduce the national savings rate and encourage additional consumption spending. As a result, interest sensitive spending, which is largely spending by businesses on capital goods, would be reduced or “crowded out.” Thus, at full employment, conventional macroeconomic theory suggests that the net effect of a tax cut would be small or nil because the economy does not have unused resources (labor and capital) that can be brought into employment. The increase in aggregate demand is dissipated through higher interest rates and/or inflation, reallocating output among sectors of the economy but leaving aggregate output unchanged.

Globalization Complicates Fiscal Policy. However, in an open economy, or one in which foreign trade and capital flows are important, the adjustment to additional fiscal stimulus can be quite different. The upward pressure on interest rates can have a significant international effect. To the extent that international capital flows are highly sensitive to interest rate differentials, as they appear to be for the United States, foreigners will respond to rising U.S. interest rates by flocking to buy American assets (stocks, bonds, and real estate). Before they can buy American assets, they must first buy dollars. This action would increase the demand for dollars and the dollar would appreciate. Dollar appreciation would, in turn, increase the price of American goods in foreign countries and decrease the price of foreign goods in the United States. This price decrease would help offset some of the inflationary pressures caused by the tax cut. As a result, Americans would tend to spend more on foreign goods and foreigners less on American goods, enlarging the trade deficit. As with the closed economy, the tax cut would not affect the growth of real output because the (fully employed) economy does not have unused resources to employ. The difference in the open economy is that the increase in aggregate demand is

⁷ (...continued)

not use it for greater consumption. This is unlikely to happen, but if it did, the tax cut would not have a stimulative effect on the economy, since aggregate demand would be unchanged.

instead dissipated through the exchange rate and the current account of the balance of payments, reallocating output away from exports and import substitutes, rather than through investment spending.⁸

Because the United States is linked to its trading partners with flexible exchange rates, and the international mobility of capital to the United States appears to be both high and rising over time, it is not uncommon for many American economists, analyzing tax cuts in terms of the conventional model, to conclude that the potential demand stimulus from such cuts will be dissipated or offset by an enlarged trade deficit.

Would the Tax Cut Crowd Out With Unemployed Resources? The analysis above is based on the assumption that the economy is at full employment. If this were not the case, would the additional household spending from the individual tax cuts increase aggregate spending and help bring the economy back to full employment? The answer to this question depends on whether the increased demand would raise interest rates and whether the increase in rates would draw capital from abroad.⁹ Theory can provide no single answer to this question, since a situation of “unemployed resources” is compatible with a variety of different circumstances. In a dire recession, investment would be expected to be highly unresponsive to changes in interest rates and the stimulative effects of tax cuts would not be significantly crowded out.¹⁰ The closer the economy is to full employment when the effects of the fiscal stimulus are felt, the more likely it is to track the predictions that come from the analysis of a fully employed economy spelled out above.¹¹

Supply Side Effects in the Short Run. The discussion above has concentrated on the demand-side effects of a tax cut. But cuts in tax rates can also have supply side effects. They can affect the incentives to work, save, and invest. In the short run, these changes are likely to be small because people’s behavior changes gradually. Furthermore, greater work effort and investment in response to tax cuts are unlikely to occur at all in the short run if the economy is in recession. That is because people are unlikely to supply more labor and capital when existing labor and capital are already underutilized. In the long run, however, these changes

⁸ The Kennedy tax cuts proposed in 1961 are often cited as a successful example of using fiscal stimulus to avoid a recession. But the economy of that era was vastly different from today’s economy, which features high, unimpeded capital mobility and a freely floating exchange rate. Under today’s regime, a fiscal stimulus is much more likely to be dissipated through lower net exports. Thus, the closed economy analysis may be more useful for evaluating the Kennedy tax cuts while the open economy analysis may be more useful today.

⁹ It is important to note that in the analysis to follow economic conditions in the rest of the world, notably foreign interest rates, are assumed to be unchanged for analytical ease.

¹⁰ In a situation where crowding out did not exist because investment was insensitive to higher interest rates, it is doubtful whether reductions in corporate taxes would offer short run stimulus since they also affect the rate of return on investment.

¹¹ It is interesting to note that although the tax cuts of the early 1980s took place during a severe recession, there was still a strong currency appreciation and expansion of the current account deficit in the following years.

may be important, as explained below. Thus, tax cuts may help end a recession or assist a recovery through their effects on aggregate demand, but not through their effects on aggregate supply.

Criticisms of the Use of Fiscal Policy

Five major macroeconomics concerns have emerged about using fiscal policy at this time.

Never a Good Time for Fiscal Policy. First, there are a group of economists who feel that the use of fiscal policy as a short-run stabilization tool has had poor results in the post-war period.¹² To be an effective stabilization tool, fiscal policy should be changed frequently, quickly, and in both directions as circumstances require. In other words, taxes cannot be merely cut during a recession, they must be raised during an expansion. The empirical record does not demonstrate that fiscal policy has been successful on the basis of any of the three criteria. The tax cut proposed by President Kennedy to head off recession in 1961 was not implemented until 1964. And most economists were highly critical of the fact that the use of fiscal policy in practice led to budget deficits in all but one year from 1961 to 1997. In the minds of these economists, fiscal policy should be used only as a last resort when all else has failed. They point to the fact that most economic slowdowns have ended without any change in fiscal policy. They are likely to have a firm belief that monetary policy can solve all but the worst economic slowdowns.

Too Small to Matter. Any tax cut that is considered will be influenced by the reduction in the projected fiscal position of the government since the beginning of 2001. The budget is projected to be in deficit until 2006 under current policy, and could be in deficit for the entire 10-year budget window under alternative assumptions.¹³ These factors suggest that a tax cut would need to be quite modest in size – probably less than 1% of gross domestic product (GDP) – to avoid a further deterioration in the government's fiscal position. Yet any tax cut that sought to minimize the effect on the budget deficit would be too small to offer a significant boost to GDP.

Recovery Already Underway. Has the economy reached these sort of dire straits? It is difficult to paint this picture with the data available at this time. While economic growth was weak in the second quarter of 2002 (1.3%), it was very strong in the first (5.0%) and third (4.0%) quarters. This growth has not been sufficient to put much of a dent in the unemployment rate thus far. These data suggest that the recovery is already underway.

Furthermore, there are a group of economists who believe that some type of slowdown was necessary. While the slowdown was undoubtedly sharper than these

¹² For example, see John Taylor, "Reassessing Discretionary Fiscal Policy," *Journal of Economic Perspectives*, v. 14, n. 3, Summer 2000, p.21.

¹³ See Congressional Budget Office, *The Budget and Economic Outlook*, (Washington: August 2002); CRS Report RL31414, *Baseline Budget Projections: A Discussion of Issues*, by Marc Labonte.

economists would have desired, they believe the economy was incapable of continuing at the pace of early 2000. Although many economists now believe that the economy is capable of growing more rapidly than it did over the early 1990s, they do not believe that sustained rates of growth in the 4% range are possible over the longer run. If growth had not slowed to a more sustainable pace, they believe that higher inflation would have occurred. And those who believe that the stock market was being driven by a bubble in 2000 would argue that a downward adjustment in prices, although damaging to short-run growth, was inevitable and irreversible.

Stimulus Already in Place. Whether or not one favors the use of fiscal policy as a stabilization tool, the economy will be receiving stimulus from both monetary and fiscal policy in the short term. There has been a loosening of monetary policy throughout 2001-2002. Overnight interest rates were reduced by 3 percentage points in the first eight months of 2001 and a further 2.25 percentage points since September 11. These reductions brought nominal short-term interest rates to their lowest level in 40 years. Because of the lags in policy effectiveness, the economic effects of some of these cuts have yet to be felt.

Fiscal policy has also been stimulative based on the policies already in place. CBO estimates that the standardized (full employment) budget has moved from a surplus of 0.7% of GDP in 2001 to a deficit of 1.7% of GDP in 2002. This is the result of both changes in spending, such as the emergency appropriations worth \$40 billion (P.L.107-38) in the wake of September 11, and the major tax cuts passed in 2001 (P.L.107-16) and 2002 (P.L.107-147). And new provisions of EGTRRA (P.L.107-16) were phased-in on January 1, 2003. These phase-ins will result in an additional estimated stimulus of \$53 billion in 2003, beyond the stimulus provided in 2001 and 2002. In this light, the question does not revolve around whether or not the economy requires expansionary policy, but whether it requires a further stimulus beyond the policies already in place.

High Long-Term Interest Rates Prevent Recovery. There are also concerns that the long run effects of a tax cut will trump its expected stimulative effects in the short run. A tax cut would embody a shift in the American fiscal regime from one that emphasizes private capital formation to one that emphasizes consumption. (This issue is explained below in greater detail.) From that perspective, it may have an adverse effect in the short run on business expectations and private investment spending, although the net stimulative effect of a tax cut should still be positive.

The model presented above suggests that the stimulative effect of a tax cut would be trumped if it was largely crowded out by higher interest rates and lower investment spending. Since the current slowdown has been concentrated in the investment sector, the model would suggest that very little stimulus would be crowded out at present. Yet an important characteristic of this slowdown is the fact that long-term interest rates, which are more important in the determination of investment spending than the short-term rates that the Fed influences, have not fallen nearly as much as short-term rates. Many economists fear that investment spending will be sluggish as long as long-term rates remain high. One theory for why this has occurred is that investors now believe that the future path of government budget deficits will be less favorable than previously expected, raising future interest rates.

The expectations hypothesis of the term structure of interest rates states that long term interest rates today are the sum of expected short-term interest rates from now into the future. If lenders expect high interest rates in the future, then the opportunity cost of long-term borrowing rises today, and long-term interest rates will remain high today.

Monetary Policy Provides a Better Stabilization Tool. Economists have long debated the merits of fiscal vs. monetary policy as a tool for ironing out short run fluctuations in GDP growth. The experience of the last two decades has led to a growing consensus among economists that monetary policy has several advantages over fiscal policy.

First, the Board of Governors of the Federal Reserve may have an advantage over other policymakers in recognizing the onset of an economic contraction. The 12 regional Federal Reserve banks employ a large, specialized staff who play an active role in gathering information about local economic conditions that they provide to the Board of Governors. This centralization of information gathering and assessment is likely to give the Board of Governors a major “recognition” advantage over others, including Congress.

Second, it is far less time consuming to deliver a monetary stimulus than it is to deliver a comparable fiscal stimulus. Monetary policy changes can be executed daily, whereas changes in tax rates or expenditures often require considerable deliberations and procedural maneuvers by Congress. The Fed reduced its target for the federal funds rates 11 times in 2001, in some cases between scheduled meetings, whereas legislation to cut taxes takes months to formulate, negotiate, and pass into law.

Once implemented, however, fiscal policy may have an advantage over monetary policy in an environment of underutilized resources of labor and capital in the length of time it takes to affect GDP growth. Certain tax changes can immediately affect the take-home pay and spending of a considerable number of households.¹⁴ Monetary policy shifts only affect the economy after households and businesses respond to changes in interest rates and the international exchange rate of the dollar. This process is likely to be more time consuming than changes in the spending behavior of households following changes in tax rates.

Third, theory suggests that monetary policy can be more powerful than fiscal policy under a flexible exchange rate regime like the one the U.S. has adopted. This conclusion is based on a belief that, as discussed above, fiscal expansion can lead to higher interest rates, all else equal. These higher interest rates attract foreign capital, which causes the exchange rate to appreciate. When the exchange rate appreciates,

¹⁴ Income and payroll tax rate reductions can immediately increase the wage portion of income through reductions in withholding, but most of the profit portion (or earnings of self employed individuals) of income will not be affected by a rate change until tax returns are (annually or quarterly) filed. Of course, disposable income will be increased only when the tax rates go into effect, which depends on the legislation (i.e., in the next fiscal year or retroactive to a previous period.) Most other individual tax changes would have an impact on spending only when tax returns are filed.

net exports fall, dissipating part or all of the fiscal stimulus. Expansionary monetary policy, or lowering interest rates, has the opposite effect. Lower interest rates can lead to more interest-sensitive spending and a depreciated currency, all else being equal. The depreciated currency makes exports more competitive, increasing net exports. Thus, expansionary monetary policy is reinforced, rather than dissipated, by the export sector under a system of flexible exchange rates.

Fourth, over the longer run, the mix and interaction of fiscal and monetary policies can be of great importance. A fiscal policy of budget surpluses makes possible an easier monetary policy in the sense of making a lower interest rate compatible with stable inflation. Although crafted for its short-run effects, an easier monetary policy has the long-run effect of fostering capital formation and a more rapid rate of growth of sustainable output. By contrast, a long-run fiscal policy of financing tax reduction through government borrowing is a policy that is expected to yield higher consumption and higher interest rates as the Federal Reserve must offset the expansion of demand with a tighter monetary policy. Higher interest rates tend to encourage less capital formation and/or a larger trade deficit.

For these reasons, many economists share the view of Professor John Taylor, a well-known macroeconomist and now an undersecretary of the Treasury, who said,

U.S. monetary policy has been doing a good job in recent decades at keeping aggregate demand close to potential GDP.... It seems hard to improve on this performance with a more active discretionary fiscal policy, and an active discretionary fiscal policy might even make the job of monetary authorities more difficult. Empirical evidence suggests that monetary policy has become more responsive to the real economy, suggesting that fiscal policy could afford to become less responsive.¹⁵

Another way to think about the role of fiscal policy is to consider that monetary policy has been delegated the task of maintaining high employment and stable inflation by Congress. To argue that expansionary policy is needed implies that either monetary policy has responded insufficiently or has been ineffective. It is difficult to make a compelling argument that monetary policy has responded insufficiently when interest rates have been lowered by a cumulative total of 5.25 percentage points since May 16, 2000. Whether it has been ineffective since investment spending has fallen in every quarter since the beginning of 2001 is more debatable. It should be noted, however, that any tax cut aimed at investment, saving, or business works through the same channel as monetary policy – by raising the (after-tax) rate of return on investment. In the case of monetary policy, this occurs because monetary policy lowers the cost of borrowing.

The Longer Run Effects of Tax Reduction

In general, many economists would support the concept that lower taxes made possible through lower government spending would increase the long run sustainable rate of economic growth. There is an important distinction, however, between this

¹⁵ John Taylor, *op. cit.*, p. 35.

concept and a tax reduction that is almost entirely offset by larger budget deficits rather than by lower government spending, as all recent proposals plan to do. This distinction has important consequences for national saving and private investment.

Budget Deficits and National Saving. Important to the long run ability of an economy to grow is its ability to add to its capital stock. Capital is necessary to ensure that additions to the labor force have the machinery, tools, and infrastructure with which to produce additional output. In addition, there is considerable evidence that the growth in productivity, which is the means by which per capita income and living standards grow, also depends on capital formation as capital often embodies new technologies, the basis for productivity growth.¹⁶

The ability of a nation to enhance its capital stock is directly related to how large a fraction of its income it saves. Saving in the United States comes from several sources. A majority comes from businesses. Households also play a critical role since they are an important source of net saving on which an enlarged capital stock depends.¹⁷ However, government itself plays a role in determining the national saving rate. Investment is only possible with saving, and national saving can only come from private saving, business saving, or government saving. When the government runs surpluses, it is thought to increase national saving; when the government runs deficits, it is thought to decrease national saving, all else being equal.¹⁸ The major change in the federal fiscal regime that occurred during the mid-1990s, in which a protracted string of budget deficits gave way to budget surpluses, has been widely hailed by economists as a regime that is conducive to capital formation because it raised the national saving rate by freeing resources that had been invested in federal debt for profitable private investment.

From the perspective of the longer run, a tax reduction plan that increases the government's budget deficit is not conducive to the long-run formation of capital.

¹⁶ In the neo-classical growth model developed by Professor Robert Solow, an increase in the saving rate would initially increase the growth rate, but the growth rate would eventually return to its steady state. By contrast, endogenous growth theory has stressed the beneficial interaction between technological improvement and other aspects of the economy, like capital formation.

¹⁷ A great deal of the saving done by businesses is used to replace the capital that is exhausted producing output. Thus, what is important for the growth in the capital stock is *net saving* or that over and above what is used to replace the capital consumed in the production of output. For an overview of U.S. saving, see U.S. Library of Congress, Congressional Research Service, *Saving in the United States: Why Is It Important and How Has It Changed?*, by Brian Cashell and Gail Makinen, CRS Report 98-580E.

¹⁸ Contrary to the conventional view, some influential economists argue that the national saving rate is unaffected by federal budget deficits or surpluses. Households, they argue, will alter their saving rates to offset any change in the federal rate. Household behavior, they argue, is motivated by concerns about the private capital stock inherited by future generations. Economists who subscribe to this view would argue that all of the tax cuts that increase the federal budget deficit would be saved by the household sector. Since they will not be spent, these economists would argue that tax cuts will not stimulate aggregate demand. They will merely change the sector of the economy where the national saving is done. This theory is popularly referred to as "Ricardian Equivalence."

If it leads to lower national saving, it favors the use of resources for consumption rather than capital formation. To the extent that lower national saving is replaced by foreign saving, more U.S. capital will be supplied by foreigners and the rewards to that capital will accrue to them.

Behavioral Effects. There is, however, another possible longer-run consequence from a tax reduction: how it affects the incentive structure for working, saving, investing, and risk taking. Individuals are motivated to work, for example, not by their gross salary, but by their after-tax salary. If taxes are reduced in a way that raises their after-tax income, this may provide an incentive to work more or, in the words of the economist, to substitute work for leisure. The same is true for saving. If the after-tax reward is increased, individuals may be encouraged to substitute saving for consumption. These effects are known as substitution effects.

While this analysis has much to recommend it, it neglects another part of the incentive structure: the effect of an increase in income on individual behavior. For example, if after-tax income rises, individuals may feel sufficiently richer to want to engage in more leisure activity. Hence, they desire to work less. Similarly, if the after-tax reward for saving rises, individuals with targeted saving objectives will be able to save less of their income and still achieve their goals. These effects are known as income effects.

The net outcome will depend on the strength of the substitution effect relative to the income effect. There is no straightforward method to measure labor and saving responses. Estimates are dependent on economic modeling which, in turn, is dependent on the assumptions made in the model. Different models yield vastly different results ranging from large responses to insignificant responses.¹⁹ Thus, it remains unclear whether these incentive effects necessarily produce significantly more work, more saving, more investment, or more risk taking.²⁰ Over the long run, the saving effects (private and public) should be a more important determinant of growth than the effects on labor, since the saving effects are ongoing whereas a tax

¹⁹ It should also be noted that different types of individuals have been estimated to have different responses to tax changes. For example, there is evidence that the labor supply of married women and individuals on the threshold of retirement is much more responsive to tax changes than the labor supply of married men. Thus, the recipient of any particular tax cut will be important in determining how much growth the tax cut generates.

²⁰ It is difficult to find evidence that tax cuts have positive effects on labor supply and household saving in the United States. Over the past decade, for example, the labor force participation rate in America has hardly changed, despite the many tax changes of the past decade. In 1990 it averaged 66.5% while during 2000 it averaged a little over 67%. Average weekly hours worked was virtually identical in 1990 and 2000. The household saving rate has declined from 6.5% of GDP during 1992 to 0.7% of GDP during 2000 despite the incentives to save provided by IRAs, Roth IRAs, and various 401(k) plans. For a more detailed explanation of supply side effects, see U.S. Library of Congress, Congressional Research Service, *Dynamic Revenue Estimating*, by Jane Gravelle, CRS Report 94-1000S, December 14, 1994. The academic debate on the magnitude of supply side effects can be found in the symposia *Supply Side Economics: What Remains?*, *American Economic Review*, v. 76, n. 2, May 1986 and *Tax Policy: A Further Look at Supply Side Effects*, *American Economic Review*, v. 74, n. 2, May 1984.

cut would presumably only lead to a one-time adjustment in labor supply. (Economic growth is determined by the *growth* of the labor supply, rather than the *level* of the labor supply.) And even if tax cuts increase the incentive to save, unless the entire tax cut is saved, the national saving rate would have to decrease since the increase in the budget deficit will be larger than any increase in personal saving.²¹

Reductions in income taxes are unique because they directly raise the return to both saving and labor. Most other types of individual taxes directly affect only one or the other. For example, a reduction in the payroll tax raises only the return to labor, while a reduction in the capital gains tax or dividends tax only raises the return to saving through certain types of assets (e.g., equities).

Tax reductions may offset at least some the negative effects that larger budget deficits have on long-term growth. Alternatively, financing higher government spending or tax cuts targeted at promoting non-economic behavioral changes (e.g., expanding the child care tax credit) through government borrowing is unlikely to have offsetting effects on growth.²²

Evaluating the Long Term Context

Few economists would be concerned about running a temporary budget deficit at a time when the economy is operating below full employment since it would probably cause little crowding out in a sluggish economy. The path of projected budget deficits under current policy is a concern for many economists, however, when placed in the context of the long-term budgetary outlook.

Even in the absence of further stimulus, current policy is unsustainable. As the “baby boom” generation retires, the ratio of workers to retirees is projected to fall from 3.4 today to 2.0 by 2050. Since government programs for the elderly (Social Security, Medicare, and Medicaid) currently operate on a “pay as you go” basis, where current workers finance current retirees, these programs will face large funding shortfalls in the future. These funding shortfalls are forecast to lead to budget deficits of 4.8% of GDP by 2040, 7.9% of GDP by 2050, and 12% of GDP by 2060 under current policy.²³ Some combination of large tax increases and cuts in entitlement spending will be required before that occurs.

²¹ If the entire tax cut is saved, it can have no short run anti-recessionary effect. That effect depends on some part of the increase in disposable income being spent. Relevant to this issue is the income distribution of tax reduction beneficiaries. Individuals at higher income levels would be expected to save a higher proportion of an addition to their disposable income than lower income individuals.

²² Higher government spending or targeted behavioral tax cuts would only have offsetting effects on growth if they promoted work, saving, or investment. Government investment is an example of spending that would have an offsetting effect, although the extent to which different types of government investment increase economic growth is controversial.

²³ Congressional Budget Office, *A 125-Year Picture of the Federal Government's Share of the Economy, 1950 to 2075*, (Washington: July 2002).

These large deficits would occur even though the budget is projected to return to surplus in the next two decades under CBO's assumptions. In fact, many analysts have argued that CBO's assumptions are too optimistic and the budget may not return to surplus at all in the next two decades. For example, CBO assumes that all expiring tax cuts, including EGTRRA, would not be renewed and discretionary spending would fall to its lowest level in the post-war period. Under less optimistic assumptions, the government would face higher interest payments and a smaller economy (since national saving would be lower) when the baby boomers retired, and even larger tax increases and spending cuts would be required.²⁴

The only possibility for mitigating these future tax increases and benefit cuts is to raise taxes or cut spending now and use the proceeds to boost the national saving rate. This can be done by paying down the national debt, the government purchase of private assets, or the financing of individual accounts through the Social Security program; the macroeconomic effects of these three choices would be the same. By increasing the national saving rate, more private investment would occur, and the future size of the economy would increase. With a larger economy, the government would have more resources at its disposal in the future to finance the retirement benefits of the baby boomers.²⁵

Another way to view the long-term perspective is in terms of inter-temporal tax smoothing. Without drastic reductions in government spending, future tax increases would be unavoidable. Thus, the government has two choices – to sharply increase taxes in the future as government spending increases or to raise taxes by a smaller amount at present, producing surpluses in the short term which increase the resources available to future governments and improve its future fiscal position. Economic theory suggests that the deadweight loss of taxation increases geometrically. Thus, if one wishes to limit the efficiency losses of taxation, it is preferable to raise taxes by a smaller amount today because sharp tax increases in the future would cause a larger cumulative efficiency loss even though there are fewer years of high taxation.

Would a Permanent or Temporary Tax Cut Be a More Effective Stimulus?

To stimulate the economy, lawmakers are considering both temporary and permanent tax cuts. Typically, a permanent tax cut is thought to be more stimulative (i.e., more of it will be spent) than a temporary tax cut. These results stem from the insights of the life cycle savings model. The life cycle model suggests that individuals desire to smooth their consumption over their lifetime rather than base their present consumption on their present income. Thus, people save for retirement so they do not have to lower their standard of living when they stop working. In the life-cycle model, a temporary increase in income, in this case from a tax cut, would be spent little by little over one's lifetime. By contrast, a permanent tax cut would

²⁴ For more information, see CRS Report RL31414, *Baseline Budget Projections: A Discussion of Issues*, by Marc Labonte.

²⁵ This concept is explained at greater length in CRS Report RL30708, *Social Security, Saving, and the Economy* by Brian Cashell.

be spent at the same rate as the rest of one's current income is spent, because the tax cut would be received every year in the future. Thus, the theory suggests that a tax cut of a given size this year would lead to more spending if it were permanent than temporary.

These results are a little too naive to be accepted at face value, however. Since tax rates change all the time, rational individuals would not necessarily base their consumption on the tax cut they receive under current law. They should instead base their consumption on what they believe, based on their best knowledge, their tax rate will be in the future given likely changes in the future tax code. If they believe that a tax cut passed today could not be sustained, then their consumption behavior would vary little from their behavior in light of a temporary tax cut. For example, a law could be passed today that permanently eliminated all taxes but kept government spending constant. Surely, a rational individual would not base their consumption decisions on a belief that taxation would remain at zero. Another reason that temporary tax cuts are less stimulative in the life-cycle model is the assumption that households can always borrow against future anticipated income. If this assumption were relaxed, then a temporary tax cut could enable households to make new purchases they would otherwise be unable to make, thus stimulating aggregate demand more than the life-cycle analysis would suggest.

Investors may also react differently to a temporary tax cut than a permanent tax cut, however. This relates to the theory presented earlier that long term interest rates are currently high because of investor beliefs about future government borrowing. If this theory is correct, then a permanent tax cut would lead investors to believe that the government will undertake even more borrowing in the future. This would make long-term interest rates even higher today, crowding out more private investment today, and making the tax cuts less stimulative. By contrast, a temporary tax cut would have little effect on future borrowing by the government. In this theory, it would therefore have little effect on future interest rates and cause little crowding out of private investment. Thus, temporary tax cuts provide a better stimulus if they lead to significantly less crowding out, while permanent tax cuts provide a better stimulus if they generate a significantly smaller savings response because people act in the way the life-cycle model suggests.

The long run advantage of a temporary tax cut is that it would not represent a continual reduction in public saving, and probably national saving, into the future. Thus, relatively less private capital investment would be crowded out in the future.

Conclusion

Congress is currently considering several tax cut proposals whose stated primary aim would be to stimulate the economy. Any proposal would affect equity, fairness, allocative efficiency, and the macroeconomy. This paper evaluates only the macroeconomic effects of a tax reduction. From a macroeconomic perspective, a plan to finance tax cuts through larger budget deficits can be judged by its short-run effects and long-run effects. The short-run effects concern how the tax cut would affect the business cycle. The long-run effects concern how the tax cut would affect long-run growth.

For a tax cut to have valuable short-run effects, the economy must have unutilized capital and labor. Otherwise, the effect of the tax cut on growth would be dissipated through a larger current account deficit, higher interest rates (and reduced investment), and higher inflation. It must be large enough to have a measurable effect on people's behavior and expectations. It must be spent rather than saved. (Tax cuts that promote saving are contractionary in the short run; if they were expansionary, then the government could accomplish a greater stimulus by instead increasing public saving through the reduction of the budget deficit.) If the proposal meets all of these criteria, its effectiveness should be compared to the effectiveness of monetary policy, the other short-run stabilization tool.

Over the longer run, a tax cut can increase economic growth if it has a positive effect on the incentives to work, save, and invest. These incentive effects are unlikely to counteract a recession in the short run since a recession is a situation where existing resources are being underutilized. Thus, there will be little demand for more labor or capital to be brought into operation. To have a positive effect in each of these areas, the substitution effect (e.g., working more because work is more highly rewarded) would have to dominate the income effect (e.g., working less because less work is required to achieve the same standard of living.) But the tax cut will only have a positive effect on long-run growth if it generates more saving/investment and labor supply than the reduction in national saving attributable to the larger budget deficit.

The intended purpose of a tax cut is crucial in evaluating the effectiveness of the measure. Most importantly, tax cuts that are most effective at boosting aggregate demand in the short run are typically least effective at increasing the sustainable rate of growth in the long run, and vice versa. For a tax cut to boost aggregate demand in the short run, it must boost either consumer or investment spending. Reductions in individual taxes would be expected to boost consumption, and tax reductions for low-income individuals are thought more likely to be spent since those individuals have a lower average saving rate. By definition, if tax reductions to low-income individuals generate more spending, then they will generate less saving. With less saving, less capital investment can be financed and long-run growth will be lower.

By contrast, a reduction in the capital gains tax or dividend tax raises the after-tax rate of return on individual investment in assets. Assuming the substitution effect dominates, this tax cut gives an incentive to spend less, which would do little to stimulate aggregate demand in the short run, and save more, which would contribute to long run growth.²⁶ To increase overall saving and growth in the long run, however, the increase in private saving must exceed the loss in public saving caused by the larger budget deficit.

For those who argue in favor of a reduction in capital gains taxes or dividend taxes, it should be noted that their effects flow through the same channel as

²⁶ For more information, see U.S. Library of Congress, Congressional Research Service, *Economic and Revenue Effects of Permanent and Temporary Capital Gains Tax Cuts*, by Jane Gravelle, CRS Report RS21014.

expansionary monetary policy in the short run or reducing the deficit in the long run – by raising the (after-tax) rate of return on investments. Expansionary monetary policy raises the rate of return on investment by lowering the inflation-adjusted cost of borrowing in the short run and reducing the deficit raises the rate of return on investment by raising the national saving rate, and thereby lowering the cost of borrowing. Thus, reductions in any of these tax rates would only be preferable to monetary policy (in the short run) and reducing the deficit (in the long run) if it could generate a greater investment response than those alternatives.