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

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

## Summary

With reports of an economic downturn, 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 are funded through a reduced surplus increase aggregate demand and influence the business cycle if they are spent. If the economy is in recession, then the tax cuts are likely to raise growth in the short run. If the economy is operating at full capacity, the boost in aggregate demand will 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 are funded through a reduced surplus (i.e., less government saving), this will 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 spent to end a recession, then long run growth will suffer because of the reduction in national saving. Tax cuts aimed towards higher saving (e.g., a reduction in the capital gains tax) are unlikely to prevent a recession because they will generate little additional short-run spending. Reductions in business taxes (e.g., reduction in corporate tax rates, an investment tax credit) could boost both short-run spending and long-run growth through higher investment. There is uncertainty, however, as to how great a short-run investment response could be expected in a recession and whether the tax cut would generate enough private saving to offset the decline in public saving.

Theory suggests, and arguably the past two decades 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 historical recessions have ended without the use of fiscal policy. At present, political inhibitions concerning a return to a unified budget deficit may prevent a tax cut from being large enough to boost aggregate demand significantly. Moreover, with the expansionary policies already in place and the economy not yet in recession, questions have been raised about the need for further tax cuts 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

On June 7, 2001, the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA, P.L.107-16) was signed into law. Its provisions are forecast to lower tax revenues by \$1.3 trillion over the next 10 years. Due to concerns about the potential for economic recession, heightened by the events of September 11, many members of both parties have called for a further round of tax cuts as an additional stimulus to 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 combat an economic slowdown. 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 keep the U.S. economy on the steady path of full employment growth. 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 large surpluses would encourage Congress to undertake "wasteful" spending and, therefore, a tax cut would help maintain fiscal discipline.<sup>1</sup>

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. In the long run, this is due primarily to legislative changes, particularly EGTRRA, which reduced the projected 10-year budget surplus by an estimated \$1.66 trillion (reducing tax revenues by \$1.3 trillion and raising debt payments by \$0.36 trillion). In the short run, the government's fiscal position is exacerbated by emergency outlays in response to the events of September 11 and will likely be exacerbated by slower growth over the next couple of years than was projected in the most recent budget forecast. 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 unified budget deficit in 2002 and a non-Social Security deficit in later years. Yet any tax cut that sought to avoid a budget deficit would be too small to offer a large boost to GDP.

Regardless of which arguments propel the tax cut debate, all will have to face the fact that a tax cut will affect the macroeconomy. This report explores what these

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<sup>1</sup> A crucial simplifying assumption made in this analysis is that the budget surplus would be maintained in the absence of a tax cut. If this is not true, as the third argument suggests, then the conclusions reached in this report would be different.

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 surplus 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. While this analysis focuses on tax reductions because of topical interest and for reasons of analytical ease, the thrust of the analysis also applies to virtually any increase in government spending that is financed through a reduced budget surplus.

## 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.**<sup>2</sup> 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.<sup>3</sup> This increase in household spending will directly and indirectly stimulate aggregate demand.<sup>4</sup> Likewise, the stimulative effect of business tax cuts would come from the fact that some portion of the tax cut would be spent on new investment, although there is much less agreement among economists that a large fraction of the tax cut would be quickly spent. 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.

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<sup>2</sup> 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 near full employment despite the recent slowdown. See, CRS Report RL30391 *Inflation and Unemployment: What Is the Connection?* by Brian Cashell, and CRS Report RL30738. *Why Has the Unemployment Rate Fallen When Inflation Is Stable?*, by Marc Labonte,

<sup>3</sup> By contrast, a reduction in the capital gains tax would likely reduce spending and contract aggregate demand because it encourages saving through certain types of assets (e.g., equities).

<sup>4</sup> Similarly, an increase in government spending that was financed through a reduction in the surplus 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 reduction in the surplus.

In the market for credit, expansionary fiscal policy is equivalent to a decrease in the national saving rate.<sup>5</sup> Since less saving is available for private investment, real 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.
- 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 reduced budget surplus 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.” In the case of corporate tax cuts, investment spending would be simultaneously boosted by lower tax rates (for incorporated businesses) and lowered by higher interest rates (for all businesses), and all sectors of the economy would be affected by higher inflation. 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

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<sup>5</sup> To see how reducing the surplus 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 surplus, and, hence, government saving declines. Thus, national saving will decline unless households save the entire tax cut and do not use it for greater consumption. This is unlikely to happen, and if it did, the tax cut would not have a stimulative effect on the economy, since aggregate demand would be unchanged.

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 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.<sup>6</sup>

**Key Variables in the Conventional Model.** The analysis above, conducted within the confines of the conventional macroeconomic model, highlights the variables that are important in deciding whether a fiscal stimulus will be successful. First, does the stimulus raise real interest rates? If it does, it will discourage or “crowd out” interest sensitive spending in the private sector. And this is likely to be spending on capital goods. Second, will any increase in United States interest rates relative to those in foreign countries draw foreign capital to the United States and/or encourage American capital that would have gone abroad to stay at home? If it does, then the United States will have to contend with an appreciating dollar and a growing foreign trade deficit. Third, is this net flow highly sensitive to small differentials in international interest rates? If it is, then “crowding out” in the United States will be heavily concentrated in the export and import competing sectors. There would be little crowding out in the capital goods sector, but an increasing proportion of the new capital goods put in place would be owned by foreigners.

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

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<sup>6</sup> 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.

abroad.<sup>7</sup> 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 tax cuts would not be significantly crowded out.<sup>8</sup> 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.<sup>9</sup>

**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 may be important, as explained below. Thus, tax cuts may help end a recession 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.<sup>10</sup> 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

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<sup>7</sup> 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.

<sup>8</sup> 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.

<sup>9</sup> 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.

<sup>10</sup> For example, see John Taylor, “Reassessing Discretionary Fiscal Policy,” *Journal of Economic Perspectives*, v. 14, n. 3, Summer 2000, p.21.



without any change in fiscal policy. They are likely to have a firm belief that monetary policy can solve all but the worse economic slowdowns.

**Slowdown Was Necessary.** Has the economy reached these sort of dire straits? There are a group of economists who believe that, on the contrary, some type of slowdown was necessary to maintain the current expansion. While the current slowdown is undoubtedly sharper than these economists would have desired, they believe the economy to have been 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. From their perspective, slower growth should not be viewed as constituting an economy below “full employment.” If growth had not slowed to a more sustainable pace, they believe that higher inflation would have occurred. Thus, from this perspective, too much additional fiscal stimulus could make a needed “soft landing” harder to achieve.

**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 three different government sources in the short term. There has been a loosening of monetary policy throughout 2001 that was redoubled in the wake of September 11. Overnight interest rates were reduced by 3 percentage points in the first eight months of 2001 and a further one percentage point since September 11. Emergency appropriations worth \$40 billion (P.L.107-38) and relief to the airline industry worth up to \$15 billion (P.L.107-42) in the wake of September 11 constitute expansionary fiscal policy if they are financed through a reduction in the surplus, as seems certain. And new provisions of EGTRRA will be phased-in on January 1, 2002. These phase-ins will result in an additional estimated revenue loss of \$31 billion in 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 three expansionary policies already in place.

**High Long-Term Interest Rates Preventing 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.

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 significantly fallen. 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 debt of the government will be larger 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 has reduced its target for the federal funds rates nine times in 2001 through October 2 by a cumulative total of 4 percentage points, 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 a recessionary environment 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.<sup>11</sup> 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.

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<sup>11</sup> 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. With reductions in different types of corporate taxes, there would be less delay expected. Unlike individual tax reductions, which aim to give consumers more after-tax income to spend or invest, corporate tax reductions aim to stimulate corporate investment. Although corporations file taxes only quarterly, it is assumed that corporations would change their behavior as soon as the tax law is changed. A similar argument can be made for a capital gains tax reduction as well.

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, 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 that keeps the budget surpluses intact 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. On the other hand, a long-run fiscal policy of using some or all of the surplus for tax reduction 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 Treasury Secretary Paul O'Neill, who said in his confirmation hearing that the Fed is the "first line of action"<sup>12</sup> to prevent recessions and that 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.<sup>13</sup>

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 in the first nine months of 2001 when interest rates have been lowered on nine separate occasions by a cumulative total of 4.0 percentage points. Whether it has been ineffective since investment spending was negative in the first two quarters 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

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<sup>12</sup> Joseph Kahn, *op. cit.*

<sup>13</sup> John Taylor, *op. cit.*, p. 35.

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

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.<sup>14</sup>

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.<sup>15</sup> 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.<sup>16</sup> The major change in

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<sup>14</sup> 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.

<sup>15</sup> 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 CRS Report 98-580E, *Saving in the United States: Why Is It Important and How Has It Changed?*, by Brian Cashell and Gail Makinen,.

<sup>16</sup> 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 reduce the federal budget surplus will 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

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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 reduces the size of the government budget surplus is not conducive to the long-run formation of capital. 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.

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.<sup>17</sup> Thus, it remains unclear whether these incentive effects necessarily produce significantly more work, more saving, more investment, or more risk taking.<sup>18</sup> And even if tax cuts

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<sup>16</sup> (...continued)

popularly referred to as “Ricardian Equivalence.”

<sup>17</sup> 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.

<sup>18</sup> 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. In 1990 it averaged 66.5 % while during  
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increase the incentive to save, unless the entire tax cut is saved, the national saving rate will have to decrease since the reduction in the budget surpluses will be larger than any increase in personal saving.<sup>19</sup>

Reductions in income taxes are unique because they directly raise the return to both saving and labor. Most other types of taxes directly affect only one or the other. For example, a reduction in the payroll tax raises the return to labor, while a reduction in the capital gains tax raises the return to saving through certain types of assets (e.g., equities). Reductions in the corporate tax rate are assumed to result in large part in a shift from government saving to higher business saving, since businesses are expected to use the tax saving in only three ways in the long run: to finance new investments, to pay off debt, or to return to shareholders. The first two are forms of saving, and whether the third leads to saving or consumption depends on what shareholders decide to do with it. Still, if new private saving does not entirely offset the loss in public saving that is financing the reduction in capital gains taxes or corporate taxes, then long run growth will be lower.

Using the surpluses for tax reductions may offset at least some the negative effects that reduced surpluses have on long-term growth. Alternatively, using the surpluses for higher government spending or tax cuts targeted at promoting non-economic behavioral changes are unlikely to have offsetting effects on growth.<sup>20</sup>

## Evaluating the Long Term Context

The discipline of economics revolves around the study of what makes people happy, which economists call utility, and happiness (at the least the kind that economists can measure) comes through consumption. If the economy is at full employment, economists regard a decision between using a budget surplus for debt reduction rather than tax cuts and/or increased government spending as a decision between shifting consumption to the present or future. Most tax cuts to individuals

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<sup>18</sup> (...continued)

2000 it averaged a little over 67 %. 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 CRS Report 94-1000S, *Dynamic Revenue Estimating*, by Jane Gravelle. 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.

<sup>19</sup> 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.

<sup>20</sup> 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 how much different types of government investment increase economic growth is controversial.

will increase present consumption, unless taxpayers save it entirely, because it is financed by a reduction in the projected budget surplus. Since there is no “free lunch” in economics, today’s increased consumption results in lower future consumption because, as explained above, a lower national savings rate causes lower investment and a smaller future economy.<sup>21</sup> Saving the surpluses, alternatively, results in higher future consumption, which must be financed by lower consumption today (because income is saved instead of consumed today.)<sup>22</sup>

Economic theory does not suggest whether the government should pursue a policy of higher present consumption (by cutting taxes) or higher future consumption (by using the surplus to pay down the national debt.) Such actions represent a transfer of income (from future to present generations, in the case of lower taxes, and from present to future generations, in the case of debt reduction) that increases the utility of one generation at the expense of the other’s utility. The desirability of any income transfer must be based on a value judgement of equity and fairness.

When the government is running a deficit, economic theory has a clearer suggestion about its long-run effects. In that case, theory suggests that the government is lowering saving, and hence growth, below what individuals would choose on their own. In today’s case, when the government is running a surplus, the argument is less clear. The burden of proof is on those arguing to maintain a surplus to demonstrate that the government is not making people worse off by forcing them to save more than they desire (and hence making them switch from greater present consumption to greater future consumption in a way that lowers their overall utility.)<sup>23</sup>

The best argument that can be made for forcing a higher rate of saving through budget surpluses relates to the enormous demographic shift that the United States will experience in this century. As the “baby boom” generation retires, the ratio of workers to retirees is projected to plummet from 3.4 today to 2 around 2050. At present, Social Security and Medicare are funded on a “pay as you go” basis, where benefits to today’s retirees are funded by today’s workers. Under the current structure, both Social Security and Medicare benefits will exceed payroll tax funding

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<sup>21</sup> In the perfect capital mobility model, the economy would be equally large, but future American consumption would still be lower because the benefits of the growth would accrue to the foreign owners of capital.

<sup>22</sup> See CRS Report RL30520, *The National Debt: Who Bears Its Burden?*, by Gail Makinen.

<sup>23</sup> Economists are generally inclined to believe that people can choose the distribution of their own lifetime consumption best if perfect (saving) markets exist and if individuals are perfectly rational and well-informed. From this perspective, accumulating surpluses are forced saving that is reducing people’s utility now more than it is increasing it in the future. Taking this argument to its logical conclusion would lead one back to Ricardian Equivalence: people are already saving at an optimal level, and anytime the budget surplus increases (or decreases), private saving will decrease (or increase) to perfectly offset that change. Reality is more complex, for example because some people are not concerned about the distant future (such as those people who do not have children) and because much saving for retirement is replaced by Social Security.

in 2016.<sup>24</sup> There is a consensus that funding these programs will place a large burden on future generations,<sup>25</sup> unless economic growth can be accelerated. There are many policy options that may increase growth, but the surest path to accelerated economic growth is to increase the national saving rate. Using the budget surpluses for debt reduction or entitlement reform<sup>26</sup> is not the only way, but it is the most direct way, to increase the national saving rate.<sup>27</sup> For this reason, about 75% of recently polled economists opined that debt reduction or reforming Social Security and Medicare were better uses of the projected surpluses than increased government spending or lower taxes.<sup>28</sup>

While there are budget surpluses projected throughout the 10-year budget window under current policy, the fiscal imbalance caused by the retirement of the baby boomers suggests that this trend would quickly be reversed. The national debt is projected to be reduced quickly in the next few years if the entire unified budget is saved. After the debt is eliminated around 2010, the government would accumulate private assets until around 2020. But after 2020, the rapid retirement of the baby boomers will cause large budget deficits to reappear. These unfunded liabilities are forecast to exhaust the government's stock of private assets in about 10 years. After that, the unfunded liabilities would cause the federal debt to rise to unsustainable levels above 200% of GDP in mid-century. Before this point, government spending would need to be sharply reduced or taxes would need to be sharply increased.<sup>29</sup> Further tax cuts would only worsen this outlook.

Another way to view the long-term perspective is in terms of inter-temporal tax smoothing. Demographics suggest that government spending will sharply increase in the future unless benefits paid to the retired or all other government spending are sharply cut from current levels. Thus, the government has two choices – to sharply increase taxes in the future as government spending increases or to raise taxes by a

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<sup>24</sup> Estimates from Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance (OASDI) Trust Funds, *A Summary of the 2001 Annual Reports*, March 2001.

<sup>25</sup> Many economists argue a more economically meaningful federal budget would include these future liabilities when calculating today's budget balance. If this were done, then today's budget would be in deficit rather than surplus. The "fiscal gap" measure calculated in the Congressional Budget Office, *Long Term Budget Outlook*, October 2000 is one method of making this measurement.

<sup>26</sup> Entitlement reform would increase national savings if and only if it increased the present discounted value of all future funding relative to the present discounted value of future benefits (and the savings were not redirected to other spending or tax cuts.) Other forms of entitlement reform may be less dependent on the maintenance of budget surpluses.

<sup>27</sup> This concept is explained at greater length in CRS report RL30708, *Social Security, Saving, and the Economy* by Brian Cashell.

<sup>28</sup> "Poor Grades for AI and George," *The Economist*, September 28<sup>th</sup>, 2000. Respondents were 54 full-time academic economists who had served as referees for the American Economic Review during 1999.

<sup>29</sup> Estimates are from CBO, *Long Term Budget Outlook*, October, 2000. For a more detailed discussion, see CRS report RL30925, *Surpluses, Zero Debt, and Unfunded Liabilities: What Are the Policy Options?*, by Marc Labonte.



smaller amount at present, producing surpluses in the short term which increase growth and decrease the government's interest outlays. If one believes that taxation significantly lowers growth and causes efficiency losses, 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 jumpstart the economy, lawmakers are considering both temporary and permanent tax cuts.<sup>30</sup> In the standard model, 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 are not forced 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 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.

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.

Investors also may 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

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<sup>30</sup> One notable exception is an investment tax credit, which would be more stimulative in the short run if it is temporary because businesses would only have a short window of opportunity to take advantage of the tax break.

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. It may be for this reason that Federal Reserve Chairman Alan Greenspan and former Treasury Secretary Robert Rubin reportedly recommended that tax cuts be temporary, as they “warned that using too much of the federal budget surplus could unnerve the markets, raising long-term interest rates...”<sup>31</sup> 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 cuts whose stated primary aim would be to stimulate the slowing 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 reduce budget surpluses through lower taxes 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 be near or in recession. 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 maintaining public saving through the preservation of the surplus.) 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. To have a positive effect in each of these areas, the substitution effect (e.g., working more because work is more highly rewarded) must 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 lower budget surplus.

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<sup>31</sup> Sue Kirchoff, “Greenspan Offers Ideas on Economic Stimulus Plan,” *Boston Globe*, September 26, 2001, p. C1.

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 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 lower aggregate demand in the short run, and save more, which would contribute to long run growth.<sup>32</sup> 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 reduction in the surplus.

Some lawmakers find proposals to lower different business taxes appealing because these proposals may have a positive effect on both aggregate demand in the short run and sustainable growth in the long run. Both an investment credit and a reduction in the corporate tax rate would raise the after-tax rate of return on capital. This would give businesses an incentive to invest more, which would both boost aggregate demand in the short run and contribute to long run growth. An investment credit is thought to generate more investment in the short run because it only benefits new investment, whereas a reduction in corporate tax rates benefits both new and old investment (i.e., shareholders). The portion of the tax cut returned to shareholders only boosts aggregate demand in the short run if the shareholders increase their consumption. Critics question whether firms respond quickly enough to changes in tax rates, particularly during a recession, for these proposals to amount to a meaningful fiscal stimulus in the short run.<sup>33</sup>

For those who argue in favor of a reduction in capital gains taxes or business taxes, it should be noted that their effects flow through the same channel as expansionary monetary policy in the short run or increasing the surplus 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 increasing the surplus 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 three tax rates would only be preferable to monetary policy in the short run and maintaining the surplus in the long run if it could generate a greater investment response than those alternatives.

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<sup>32</sup> For more information, see CRS Report RS21014, *Economic and Revenue Effects of Permanent and Temporary Capital Gains Tax Cuts*, by Jane Gravelle,

<sup>33</sup> For more information, see CRS Report RL31134, *Using Business Tax Cuts to Stimulate the Economy*, by Jane Gravelle.