

Notes on Tax Policy in the Aftermath of the Terrorist Attack

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ABSTRACT

In the aftermath of the recent terrorist attacks, the Federal Reserve Board reduced interest rates, and Congress approved a \$40 billion spending package (for defense, rescue and rebuilding efforts) as well as an airline bailout program. The key issues facing policy-makers are whether additional stimulus proposals should be approved, and if so, what form they should take. Spending initiatives aimed at quickly stimulating the economy – including the rapid rebuilding of New York City and efforts to attenuate the costs of economic slowdown – are worthy of consideration, and should likely form part of any stimulus package. Since tax cut proposals have now taken center stage in the stimulus debate, however, the focus of this paper is the stimulus potential of alternative types of tax cuts.

The effectiveness of any potential tax stimulus needs to be evaluated relative to the current and expected economic and budget outlook. The attacks disrupted the workings of an already weakening economy, and may well have pushed the economy into a recession. But the economy's long-term prospects remain strong. The 10-year budget outlook, which was relatively auspicious at the beginning of the year, has deteriorated rapidly due to the tax cut enacted this spring, the weakening of the economy before the terrorist attack, and the weakening economy after the attack. The economic outlook thus suggests the need for policies that stimulate the economy in the short-run. The budget outlook suggests that the long-run revenue impact of stimulus policies should be limited, so as to avoid exacerbating the long-term fiscal situation, which would raise interest rates and undermine the effectiveness of the stimulus.

In short, the most effective stimulus package would maximize its “bang-for-the-buck.” It would direct the largest share of its tax cuts toward spurring new economic activity, and it would minimize long-term revenue losses. This reasoning suggests five principles for designing the most effective tax stimulus package: (1) Allow only temporary, not permanent, items. (2) Set an overall stimulus budget. (3) Structure any business incentives to encourage new investment, not to subsidize previous investment. (4) Design any individual income tax reductions to maximize effect on demand. (5) Maintain long-term fiscal discipline.

These principles suggest that the most effective tax stimulus packages would stimulate consumer spending and/or business investment in the short run, without exacerbating long-term fiscal problems. Thus, temporary rebates to individuals and temporary subsidies for new investment for firms would likely be the most effective way to stimulate short-term economic activity via tax cuts. It is worth emphasizing, however, that a stimulus package with substantial long-term revenue costs could do more harm than good. Evidence suggests that expensive long-term packages would raise interest rates, which would restrain business and housing investment and interest-sensitive consumption. Many of the stimulus proposals currently being considered are primarily oriented toward longer-run considerations, do little or nothing to address the need to stimulate the economy in the short-run, and would exacerbate long-term fiscal problems. Proposals to cut tax rates on capital gains or on corporate income are particularly problematic along these dimensions. Such proposals may be worth discussing in other contexts, but they clearly represent the wrong policy response at the current time.

I. Introduction and Summary

Congressional and Administration leaders are now examining the appropriate economic and fiscal policy response to the recent terrorist attacks. Some policy responses have already occurred in the aftermath of the attacks. For example, the Federal Reserve immediately signaled its willingness to provide liquidity to the markets, and on September 17, reduced its key lending rate by 50 basis points. On September 14, Congress approved a \$40 billion spending package for defense, rescue and rebuilding efforts, which was signed into law by the President on September 18.¹ The Administration and the Congress have also agreed upon a \$5 billion bailout, along with a guaranteed loan program, for the airline industry.

The key issues facing policy-makers are whether additional stimulus proposals should be approved, and if so, what form they should take. Spending initiatives aimed at quickly stimulating the economy – including the rapid rebuilding of New York City and efforts to attenuate the costs of economic slowdown – are worthy of consideration, and should likely form part of any stimulus package. Since tax cut proposals have now taken center stage in the stimulus debate, however, the focus of this paper is the stimulus potential of alternative types of tax cuts.

The effectiveness of any potential tax stimulus needs to be evaluated relative to the current and expected economic and budget outlook. The attacks disrupted the workings of an already weakening economy, and most economists argue that it may have pushed the economy into a recession. A variety of commentators, however, agree that the economy's long-term prospects remain strong. The ten-year budget outlook, which was relatively auspicious at the beginning of the year, has deteriorated rapidly due to the tax cut enacted this spring, the weakening of the economy before the terrorist attack, and the attack itself. The attack will likely put further pressure on the budget by reducing output growth (which will reduce taxes and raise spending), and by introducing new spending requirements (for the war on terrorism and for economic recovery).

The economic outlook thus suggests the need for policies that stimulate the economy in the short-run, but little need (or, more precisely, little *increased* need in the wake of the attacks) for policies geared toward longer-term growth. The budget outlook suggests that the long-run revenue impact of stimulus policies should be limited, so as to avoid exacerbating the long-term fiscal situation, which would raise long-term interest rates and undermine the effectiveness of the stimulus.

In short, the most effective stimulus package would maximize its “bang-for-the-buck.” It would direct the largest share of its tax cuts toward spurring new economic activity, and it would

¹ The legislation (the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States) provides funding for Federal, State, and local efforts to respond to the attacks; increased transportation security; the repair of public facilities and transportation systems; and national security. Half of the \$40 billion may be obligated only when enacted in a subsequent emergency appropriations bill. In addition, not less than half of the \$40 billion total must be spent on relief to New York, Virginia, and Pennsylvania.

minimize long-term revenue losses. This reasoning suggests five principles for designing the most effective tax stimulus package:

1. Allow only temporary, not permanent, items. The stimulus package should include only temporary items, not permanent changes. This will limit the long-term cost of the package and reduce the temptation for policy-makers to try to push through long-standing proposals that may or may not have merit for other reasons, but do little or nothing to stimulate the economy in the short run.
2. Set an overall stimulus budget. Policy-makers should set an overall budget for economic stimulus before debating the actual features of the package. Such an approach will further limit the possibility of a run-away, “Christmas tree” spending and tax package that could severely damage budget prospects and thus raise interest rates. Fed Chairman Alan Greenspan and former Treasury Secretary Robert Rubin recently suggested a “budget” for the stimulus of \$100 billion, including those items that have already been enacted since the attacks.²
3. Structure any business incentives to encourage new investment, not to subsidize previous investment. Policy-makers should focus business incentives on new investment. This could include temporary provisions to provide accelerated depreciation, expensing, or tax credits for new investments during the near future. This principle rules out cuts in tax rates on corporate income or capital gains, both of which primarily reward old investments by reducing the taxes owed on the returns those investments have generated. Cutting the tax rate on the returns from old investment does little or nothing to stimulate the economy now.
4. Design any individual income tax reductions to maximize effect on demand. Any individual tax cuts should encourage people to spend the funds, in order to boost the economy further. Tax cuts should therefore be focused on low- and middle-income households who tend to have a higher propensity to spend out of their income than do high-income households. Timing any new individual tax cut to coincide with the holiday season may be an effective way to encourage it to be spent.
5. Maintain long-term fiscal discipline. Policy-makers should offset the cost of any short-term stimulus package and the long-term continuing costs of any permanent additional anti-terrorism measures by scaling back part of the already legislated future tax cuts for those least in financial need of additional tax reductions. Whatever one’s view of the affordability of the tax package enacted last spring, it was passed before the nation realized it would need to finance a new war. Furthermore, combining short-term stimulus with long-term fiscal discipline provides more stimulative impetus to the economy than a stimulus package alone, since it restrains any increase in interest rates that could undermine the effectiveness of the stimulus.

² Curt Anderson, “Greenspan, Rubin Agree on Tax Cuts,” Associated Press, September 25, 2001, 5:42 pm. It is worth noting that the \$100 billion figure was intended by Greenspan and Rubin to include the costs of the stimulus packages that have already been enacted since the attacks.

These principles suggest that the most effective tax stimulus packages would stimulate consumer spending and/or business investment in the short run, without exacerbating long-term fiscal problems. Thus, temporary rebates to individuals and temporary subsidies for new investment for firms would likely be the most effective way to stimulate short-term economic activity via tax cuts.

It is worth emphasizing that a stimulus package with substantial long-term revenue costs could do more harm than good. Evidence suggests that expensive long-term packages would raise interest rates, which would restrain business and housing investment and interest-sensitive consumption. Many of the stimulus proposals currently being considered are primarily oriented toward longer-run considerations, do little or nothing to address the need to stimulate the economy in the short-run, and would exacerbate long-term fiscal problems. Proposals to cut tax rates on capital gains or on corporate income are particularly problematic along these dimensions. Such proposals may be worth discussing in other contexts, but they clearly represent the wrong policy response at the current time.

II. The Economic and Budget Situation

An effective economic stimulus should take into account both the underlying economic situation and the government's budget constraint.

A. The economy

The economy began to weaken well before the recent attack. After several years of unusually strong growth, economic growth began to slow in the latter half of 2000. Real Gross Domestic Product (GDP) growth fell to 1.3 percent (on a seasonally adjusted and annualized basis) in the first quarter of 2001 and to 0.2 percent in the second quarter. Much of the decline was associated with a softening in business investment: Investment in equipment and software, for example, *fell* by 15 percent on an annualized basis in the second quarter of 2001. Household consumption remained resilient before the attack, as did the housing market. Yet concerns were starting to mount that increases in unemployment (which rose to 4.9 percent of the labor force in August) and declines in consumer confidence would weaken consumer spending, producing a more substantial slowdown in the economy as a whole.

The attack may have complex implications for the economy. It clearly caused severe short-term disruptions. Economic activity basically ceased for several days, as concern over the attacks disrupted daily schedules. The attack poses a particularly difficult challenge for the travel and tourism industry, and could potentially interrupt some business activities that require face-to-face meetings or expedited shipping. The stock market plummeted following the attack, with the S&P 500 falling 12 percent and eliminating an estimated \$1.4 trillion in equity wealth in the first week it was open. The fear is that consumer spending will collapse, in response to declining stock prices and general economic uncertainty.³ If so, the decline in aggregate demand could cause business investment to fall further. Most forecasters are now predicting a recession, with estimates of the depth and duration varying.

³ Standard estimates suggest that a decline in stock market wealth of \$1.4 trillion would cause a decline in consumer spending of between \$40 and \$70 billion.

On the other hand, several factors suggest a somewhat more auspicious outlook in the short-run. In response to the Federal Reserve's actions, interest rates have fallen substantially. Short-term interest rates are now negative in inflation-adjusted terms. Energy prices have also fallen, with the average price of unleaded gasoline falling from \$1.73 per gallon in May to \$1.43 in August. The "automatic stabilizers" of the Federal budget (such as unemployment insurance payments) will also spur demand as the economy slows, as will the additional fiscal stimulus packages that have already been approved.

Finally, it is crucial to recognize that the long-term prospects of the country remain sound. As Alan Greenspan noted in Congressional testimony on September 20, "as we struggle to make sense of our profound loss and its immediate consequences for the economy, we must not lose sight of our longer-run prospects, which have not been significantly diminished by these terrible events."⁴ Indeed, one of the fundamental points of this paper is that even in the wake of the nation's tragedy, we should not ignore issues relating to the economy's long-term health.

B. The budget

Over the past decade, the Federal budget has experienced a dramatic shift. In 1989, the Federal deficit amounted to 2.8 percent of GDP. By 1998, as the result of both deficit reduction efforts and surprisingly strong economic growth, the Federal government ran a unified budget surplus of 0.8 percent of GDP, which rose further in 1999 and 2000. Debt held by the public fell by 15 percent of GDP between 1995 and 2000. As the nation entered 2001, it therefore enjoyed a relatively good medium-term budget outlook. The Congressional Budget Office, for example, estimated in January that the Federal government would run a budget surplus outside Social Security of roughly \$3.1 trillion between 2002 and 2011. After 2011, as the baby boomers began to retire, the budget outlook worsened. But for the next decade or so, the projections suggested substantial surpluses.

Since January, the ten-year budget outlook has deteriorated substantially. As a result of the tax legislation enacted in the spring and the slowing economy, the surplus estimates fell dramatically. Revised estimates released by the Congressional Budget Office in August showed a projected surplus over the next 10 years outside of Social Security of \$846 billion. Most of the reduction reflected the enactment of the new tax legislation, not the slowing economy. For example, legislative changes (principally the tax cut) accounted for 80 percent of the reduction in the projected surpluses over the next 10 years. Even the \$846 billion in projected surpluses outside Social Security, moreover, are based on relatively optimistic assumptions about economic growth, tax collections, and spending plans.⁵

⁴ Alan Greenspan, "The Condition of the Financial Markets," Committee on Banking, Housing, and Urban Affairs, U.S. Senate, September 20, 2001.

⁵ For example, the \$846 billion figure does not reflect other initiatives in the Congressional budget resolution (such as a prescription drug benefit); assumes that the \$1.35 trillion package of tax cuts actually will expire on December 31, 2010; assumes that other expiring tax provisions will be allowed to expire; does not reflect the additional defense spending that the Administration requested in June; assumes that Congress will not aim to fix the problems arising from 35 million taxpayers having to face the alternative minimum tax; and assumes that funding for non-defense programs over the next decade fall much below what is needed for these programs to keep pace with inflation and

The terrorist attack will cause a further deterioration in the Federal budget outlook for three reasons. First, as noted above, the government may allocate \$100 billion on an economic stimulus package. If this stimulus effort is temporary only (as recommended here), it would have only a marginal effect on the long-term fiscal outlook, but if the “stimulus” includes permanent components, it would impose much more substantial costs on the budget in the long term. Second, the Federal government is understandably devoting substantial resources to countering the effects of the attack on affected parties and to improving national security. Many of these costs will be continuing ones. Third, the attack may cause a slowing of the economy, which would result in lower revenue and higher spending – and therefore put further pressure on the budget.

There are significant opportunities for the Congress to cover much of the costs involved in responding to the terrorist attacks simply by freezing portions of the tax cuts scheduled for 2004 and thereafter. For example, freezing the top marginal tax rate at 38.6 percent, rather than allowing it to decline in the future, could finance a short-term stimulus package without endangering long-term fiscal discipline. According to the Joint Committee on Taxation, freezing the 38.6 marginal tax rate would save roughly \$100 billion between 2002 and 2011 (excluding debt service savings),⁶ enough to meet the full costs of \$100 billion in total stimulus (including the initial \$40 billion and airline legislation). Such a freeze would not represent a change relative to current law until 2004, well after the nation’s short-term economic challenges are likely to have passed. It would also affect only 1.1 million taxpayers, who have an average adjusted gross income of \$1.025 million. Even those high-income taxpayers would only forgo a future marginal tax cut, rather than experiencing a tax increase relative to today’s rates, and would still enjoy a reduction in average tax rates (since the tax rates applying at lower levels of income would decline). Since the long-term response to preventing terrorism will cost much more than the short-term stimulus package alone, other adjustments will have to be considered by the Congress and the Administration to help the nation meet its long-term fiscal obligations.

III. Analysis of Specific Policy Proposals

Because the economy is facing a short-term downturn, a tax package should stimulate consumer spending and new business investment. Because the long-run prospects for the economy remain strong, there is little need for permanent tax changes. And because the long-term budget situation is precarious, stimulus packages that feature permanent tax changes that reduce revenue significantly could be counterproductive because of their impact on long-term interest rates.

population growth. The \$846 billion figure does not reflect the bipartisan commitment to save the surpluses in the Medicare Part A program, nor does it devote the cash surpluses in Federal and military pension funds to saving.

⁶ Letter from Bernard Schmitt, Joint Committee on Taxation, to Senator Barbara Boxer, September 4, 2001. The Joint Committee estimate applies specifically to the projected cost of reducing the 38.6 percent rate to 35 percent, given the tax code prior to the enactment of the Economic Growth and Tax Relief Reconciliation Act of 2001. The savings from freezing the 38.6 percent rate at this point may be somewhat smaller than this estimate, since other provisions of that Act interact with the marginal tax rate revenue effects.

A. Capital gains tax cuts

One proposal would reduce the maximum tax rate on long-term capital gains from 20 percent to 15 percent.⁷ Whatever its merits in other contexts, a capital gains tax cut has several crucial drawbacks as a stimulus tool.⁸

Permanent cut. A permanent capital gains tax cut is poorly designed to address the short-term economic problems at hand.⁹ First, a capital gains tax cut is typically promoted as producing economic benefits in the long run, not the short run. Even those who believe that a capital gains tax cut would encourage business investment acknowledge that the impact is slow. Second, even in the long run, the benefits are limited. For example, a recent Congressional Budget Office study concluded that reducing the top tax rate on long-term capital gains from 20 percent to 15 percent would have a minuscule effect on private saving and long-term economic growth.¹⁰ Third, a capital gains tax reduction is not an efficient way to target *new* investment, because the tax cut would apply to capital gains on *existing* assets (which are a return to prior investment).¹¹

⁷ For assets held more than one year, taxpayers in the 15 percent bracket and lower brackets face a 10 percent capital gains rate, while taxpayers in the 27 percent bracket and higher brackets face a 20 percent capital gains rate. Rates lower than these can apply to assets held for at least five years. Assets acquired after December 31, 2000 that would otherwise be subject to the 10 percent rate will be taxed at 8 percent if they have been held for more than five years before being sold. For assets otherwise subject to the 20 percent rate, a 18 percent rate will apply if the asset has been held for more than five years and was acquired after December 31, 2000. This 18 percent rate thus can be applied to some assets sold beginning in 2006. Assets held for less than one year (short-term capital gains) are taxed at the same rate as regular income. If the top rate were reduced to 15 percent, the 10 percent rate would presumably be reduced to 7.5 percent, which has been the case with similar proposals in the past, but no specifics are currently available.

⁸ Some of this material is taken from Joel Friedman, Iris Lav, and Peter Orszag, "Would a Capital Gains Tax Cut Stimulate the Economy?" Center on Budget and Policy Priorities, September 20, 2001.

⁹ For further discussion of the effects of a capital gains tax cut, see Leonard Burman, *The Labrynth of Capital Gains Tax Policy: A Guide for the Perplexed*, Brookings Institution, 1999, and Henry Aaron, "The Capital Gains Tax Cut Mystery," Tax Notes, March 9, 1992.

¹⁰ Congressional Budget Office, "An Analysis of the Potential Macroeconomic Effects of the Economic Growth Act of 1998," CBO Memorandum, August 1998. CBO estimated that private saving would rise by 0.3 percent, adding about 0.06 percent to the capital stock after ten years. The increase in GDP would amount to about \$2 billion to \$3 billion after ten years -- or less than two one-hundredths of one percent of GDP. The long-run benefits of a capital gains tax cut are limited for several reasons. For example, many assets would be unaffected. Assets held in pension funds and individual retirement accounts do not face individual capital gains tax -- nor do assets held by foreign investors, corporations, non-profits, or those who offset capital gains with capital losses. Similarly, capital gains on assets held for less than one year are subject to the regular income tax rate, not the preferential long-term capital gains rate, and therefore would be unaffected. Furthermore, for most families, any gain on the sale of their personal residence is exempt from the capital gains tax, since the first \$500,000 of the gain for married couples (\$250,000 for singles) is exempt from the tax. Investors can also reduce or avoid the impact of capital gains taxes by deferring the sale of assets. In fact, about half of all capital gains tax is avoided by investors altogether, as they hold onto assets until they die. (Heirs do not have to pay tax on the gains accrued during the lifetime of the original owner.)

¹¹ In addition, the capital gains rate cut would reduce revenue in the long run, and exert upward pressure on long-term interest rates. Reducing the maximum capital gains tax rate from 20 percent to 15 percent would be expected to result in revenue losses totaling more than \$50 billion over the next ten years. In 1999, the Joint Tax Committee estimated a similar proposal to cost \$52 billion between 2000 and 2009. Joint Committee on Taxation, "Estimated Budget Effects of H.R. 2488, the Financial Freedom Act of 1999, as passed by the House of Representatives," JCX-53-99, July 22, 1999. One would expect the costs to be higher today, as the budget window has shifted forward to 2002 through 2011 and baseline estimates of capital gains realizations have risen.

Fourth, cutting the tax rate on capital gains is unlikely to stimulate consumption. Indeed, proponents of a capital gains tax reduction typically argue that it would stimulate saving, not consumption.¹²

Temporary cut. Another version of the proposed reduction in capital gains taxes would make the reduction temporary. Such a temporary reduction in capital gains is particularly problematic, since it would provide an incentive to sell shares in the short run and thus could cause a deterioration in stock prices. Indeed, the only plausible mechanism through which a temporary capital gains tax could generate short-term stimulus is if individuals were more likely to consume out of realized capital gains than unrealized gains, and the realized gains induced by the temporary capital gains tax cut therefore boosted consumption. But to the extent the realized gains were consumed, stock prices would tend to decline because the realized gains would not be reinvested in the stock market. Any such stock market decline could harm consumer confidence and reduce consumption. Fundamentally, policies that could induce stock market declines are unlikely to be beneficial at this point. A temporary capital gains tax cut is thus an inappropriate response to the current economic slowdown.

Summary. The discussion above leads us to the same conclusion as economist Jane Gravelle in a recent Congressional Research Service report: “a capital gains tax cut appears the least likely of any permanent tax cut to stimulate the economy in the short run; a temporary capital gains cut is unlikely to provide any stimulus.”¹³

B. Corporate tax rate cuts

Recent reports indicate that the Administration is advocating reductions in the tax rate on corporate income as the best method for stimulating the economy.¹⁴ Advocates offer a variety of claims on behalf of such a tax cut: they claim it would raise stock market values (thereby stimulating consumer spending through the wealth effect), would result in lower costs of goods to households, and would increase investment. In fact, a senior economic Administration official went so far as to assert that the only reason to oppose a permanent corporate rate cut is “‘fundamentally political’ because it would be portrayed as a break for powerful special

¹² It is also worth noting that a capital gains tax reduction -- whether temporary or permanent -- would produce disproportionate benefits for higher earners, who would be unlikely to spend a large percentage of their tax gains. Based on estimates by the Congressional Research Service (CRS), it is likely that 80 percent of the benefits from a capital gains tax cut would accrue to the two percent of the population with the highest incomes -- those with incomes exceeding \$200,000. Using Joint Committee on Taxation data for 1999, CRS estimated that the 1.8 percent of taxpayers with incomes over \$200,000 (in 1999 dollars) pay 78.6 percent of capital gains taxes. Jane G. Gravelle, "Capital Gains Taxes: Distributional Effects," Congressional Research Service, September 24, 1999.

¹³ Jane G. Gravelle, "Economic and Revenue Effects of Permanent and Temporary Capital Gains Tax Cuts," Congressional Research Service, September 17, 2001.

¹⁴ John D. McKinnon and Shailagh Murray, "White House Quietly Pushes Corporate-Tax Cut," *Wall Street Journal*, September 26, 2001.

interests.”¹⁵ But a corporate tax rate cut -- whether permanent, temporary, or delayed -- would be ill-suited to addressing the nation’s short-run economic challenges.¹⁶

Permanent cut. A permanent corporate tax rate cut is a poor way to stimulate a faltering economy for three general reasons. First, it is an inefficient way to stimulate economic activity. That is, it subsidizes current corporate income, which represents the income earned on investments made in previous years. Firms that are making no current investments, or are reducing their current investments, would still benefit greatly if they are profitable -- that is, if they have sufficient income from previous investments to more than cover their expenses. Second, the corporate tax rate cut provides little, if any, immediate assistance to firms that are unprofitable, since they are not currently paying corporate income taxes (although they may face the corporate alternative minimum tax). These are, however, the firms that are disproportionately in need of assistance during the downturn. Third, permanent reductions in corporate tax rates are expensive -- each percentage point decline in the corporate tax rate reduces projected surpluses by about \$90 billion over the next decade, including about \$70 billion in tax revenue losses and \$20 billion in additional interest on the public debt. This decline in the surplus will cause any significant cut in corporate rates to put pressure on long-term interest rates, which in turn could potentially erode any positive effects of a corporate tax cut on the stock market (see Appendix 1) and on new investment (see Appendix 2).

One claim is that cutting the corporate rate would stimulate consumption, through a somewhat circuitous and overly optimistic three-step route. First, the argument goes, reducing the top corporate tax rate from 35 percent to 25 percent (and the other corporate tax rates by a similar proportion) would raise after-tax earnings in 2002 by \$60 billion, with the amount rising over time.¹⁷ Second, since the aggregate stock market price-to-earnings ratio is roughly 20, the increase in after-tax earnings would add \$1.2 trillion to the value of the stock market. Third, if investors spend between 3 percent and 5 percent of the increase in stock values -- the so-called wealth effect assumed by most economists -- between \$36 billion and \$60 billion would be added to aggregate demand in the near term, when the economy needs it most.

This chain of reasoning is problematic for several reasons. First, even if it were valid, the corporate tax rate cut would imply a very small short-term stimulus relative to its long-term costs. The tax cut described above would reduce tax revenue by more than \$700 billion over the next decade. Including the associated increase in interest payments on the Federal debt, the ten-year cost would exceed \$900 billion.¹⁸ But the stimulus provided over the next year would

¹⁵ Richard Stevenson and Joseph Kahn, “The Economy: Bush Tries to Steady Economy Jolted by Attack,” *New York Times*, September 23, 2001, Section 1A.

¹⁶ For further discussion, see Joel Friedman and Iris Lav, “A Permanent Corporate Tax Rate Cut: The Wrong Medicine for Short-term Economic Ills,” Center on Budget and Policy Priorities, September 26, 2001.

¹⁷ Projected baseline corporate revenues are \$210 billion in fiscal 2002, rising to \$321 billion in 2011. Congressional Budget Office, *The Budget and Economic Outlook*, August 2001, Table 1-2.

¹⁸ These estimates are based on communications with Richard Kogan, Center on Budget and Policy Priorities. They do not include interactions with the alternative minimum tax or corporate responses via increased investment. Including either of these responses would reduce the revenue costs. Nor do the estimates include the potential shifting of economic activity from the personal sector (including individual proprietorships and partnerships) and S-corporations into the corporate sector to take advantage of corporate tax rates that would be far lower than the highest individual tax rates. Including this response would raise the overall revenue cost—to be precise, it would reduce the corporate tax revenue loss, but increase the individual income tax revenue loss by even more. Evidence

amount to only \$36 billion to \$60 billion, or between 4 and 7 percent of the 10-year cost (or even less if, as some economists believe, wealth effects take time to materialize as increased consumption). Other tax reductions -- targeted at consumer spending or new business investment -- could achieve a much larger short-term stimulus per dollar spent.

Second, the optimistic scenario for stock prices is unlikely to be valid because it ignores the impact of an increase in long-term interest rates in response to the tax cuts. Policies that diminish expected debt reduction raise long-term interest rates, an effect that many analysts believe is already manifesting itself in a steeper yield curve.¹⁹ Some corporate rate cut defenders may claim that reducing Federal revenue by \$900 billion over the next decade would not raise long-term interest rates. Yet for years, corporate America has claimed that high Federal deficits and debt raised interest rates and therefore crowded out private-sector borrowers.²⁰ Indeed, estimates from President Clinton's Council of Economic Advisers and from Harvard Professor Martin Feldstein suggest that the rise in interest rates resulting from a tax cut of the size discussed above would be sufficient to wipe out most, if not all, of any prospective gain in the stock market (see Appendix 1).

Third, even if the increase in interest rates were small enough to allow some increase in stock prices, the higher interest rates could dampen demand in other sectors, including real estate and interest-sensitive consumption. Fundamentally, an increase in long-term interest rates could attenuate or eliminate any short-run stimulus and thus undermine the intent of the stimulus package.

A second claim made by proponents of reducing corporate tax rates is that the tax cuts would be immediately passed along to consumers in the form of lower prices for goods and services. This argument is also problematic for several reasons. First, note that it is inconsistent with the stock market argument above. The putative increase in stock values also claimed by advocates of the corporate rate reduction depends on a reduction in corporate taxes *without* a reduction in pre-tax corporate revenue. If corporate revenue fell because the tax savings were fully passed on to consumers in the form of lower prices, there would be no reason for stock values to rise in the first place (even if interest rates remained constant), since after-tax corporate earnings would not have changed. Also, recall that unprofitable firms do not pay corporate income taxes. Thus, they would not realize any cost savings, but they would (through the decline in market prices caused by the actions of profitable firms) experience a reduction in revenue. As a result, if the cut in corporate taxes were indeed passed along in the form of reduced prices, the result could make it even more difficult for unprofitable firms to survive.

suggests that the potential for shifting economic activity from one sector to the other is quite large. See, for example, Roger H. Gordon and Joel B. Slemrod, "Are 'Real' Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Bases?" in Joel B. Slemrod, ed., *Does Atlas Shrug? The Economic Consequences of Taxing the Rich* (Russell Sage Foundation: New York, 2000).

¹⁹ Early this year, the yield spread between 30-year Treasury securities and 1-year Treasury securities was less than 100 basis points. Last week, it had risen to more than 300 basis points.

²⁰ The President of the National Association of Manufacturers, for example, has written that economic policy errors of the 1980s "created huge Federal budget deficits, raised interest rates, overvalued the dollar, raised the cost of capital, and, in the end, lessened the competitiveness of American industry." See Jerry Jasinowski, "The Low Dollar has Worked Wonders," *New York Times*, April 10, 1988, Section 3, page 3.

A third claim is that corporate tax rates cuts would raise investment by reducing the cost of capital investment and raising the after-tax return on such investment. This argument is correct as far as it goes, but it ignores several critical factors. The main point -- as documented in Appendix 2 -- is that a temporary investment tax credit (ITC) could generate an equal or larger effect on new investment at a tiny fraction of the cost of a corporate tax rate cut. A corporate rate cut is thus an extremely inefficient mechanism for generating new investment.

To see why a corporate tax cut is much less efficient approach to encouraging new investment than a temporary investment tax incentive, consider the following three points. First, assume there is no change in interest rates due to either policy. Under that assumption, reducing the corporate tax rate by 10 percentage points has the same effect on the cost of new capital investments as the creation of a new investment tax credit of roughly 5 percent. However, the 10-year revenue cost of the temporary ITC is about \$50 billion, whereas the 10-year revenue cost of the corporate rate cut is about \$700 billion (without debt service). Thus, even with no interest rate effects, it costs more than ten times as much to obtain a given reduction in the cost of capital via a permanent corporate tax cut than through a temporary ITC. The intuition is that the ITC focuses on new investment, whereas the corporate tax cut mainly subsidizes old investment and is permanent. Since the stock of existing capital is so much larger than the flow of new investment in any given year, the vast majority of the benefit from a corporate rate reduction would accrue to *existing* capital rather than new capital. For example, according to data from the Bureau of Economic Analysis, non-residential structures, equipment, and software amounted to more than \$10 trillion at the end of 1999.²¹ Yet annual investment in such areas amounts to roughly \$1.3 trillion. If the return from existing capital is equal to the return from new investment, roughly 90 percent of the benefits from a corporate tax cut would accrue to old investment rather than new investment.²²

Second, the “bang for the buck” efficiency of an temporary ITC relative to a corporate tax rate reduction becomes even larger once interest rates are allowed to change in response to the policies. As shown in Appendix 1, cutting the corporate tax rate by 10 percentage points could raise interest rates by roughly 60 basis points. This increase in the interest rate would eliminate more than half of the reduction in the cost of capital created by the corporate tax rate cut assuming no change in interest rates. Thus, allowing for interest rate adjustments, an ITC of 2 percent would be sufficient to generate the same reduction in the cost of new capital investment as a permanent corporate rate cut of 10 percentage points. A temporary ITC of 2 percent would only cost about \$20 billion over the next decade -- roughly 3 percent as much as a corporate rate cut that generates the same reduction in the cost of new investment.

We emphasize that these calculations are illustrative; the important conclusion is not the precise ratios but that the costs of a permanent corporate tax rate cut would vastly exceed the costs of a temporary investment tax credit with the same incentive for new investment. A key lesson, therefore, is that a short-term investment incentive, especially if it is combined with long-

²¹ Bureau of Economic Analysis, “Fixed Assets and Consumer Durable Goods for 1925-99,” corrected tables, June 15, 2001, <http://www.bea.doc.gov/bea/dn1.htm>. The \$10 trillion figure reflects the current cost estimate of the net stock of private, non-residential structure, equipment, and software.

²² An even larger share of the tax benefits would accrue to old investment plus the share of new investment that would have been undertaken even in the absence of the tax reduction.

term fiscal discipline, is particularly effective because it avoids any significant increase in interest rates.

Third, for a given reduction in the cost of capital, a temporary ITC will have a larger effect on current investment than any permanent tax incentive, because the temporary measure reduces the cost of current investment relative to future investment. The temporary measure thus encourages firms to accelerate their investment plans, whereas a permanent measure does not.

A final claim is that corporate tax rate cuts would help reduce layoffs. Such an effect seems unlikely. After all, corporate income tax cuts do not help firms that are already losing money, and these are the firms most likely to lay off workers.²³

Delayed but permanent cut. A twist on this proposal would enact a permanent corporate rate tax cut, but delay the implementation for a few years. This approach would ostensibly give firms incentives to invest now, claim deductions against these investments at current (higher) tax rates, and then realize the income from the capital investments at future (lower) tax rates. The delay also reduces the revenue cost of the proposal somewhat. This proposal thus has a slight advantage over a permanent, immediate tax cut, but it still shares all of the other problems noted above. It would still reward old investment in addition to new investment, and it would provide no benefits to firms that are unprofitable currently. It would also tend to raise long-term interest rates, since it would reduce revenue in the long run. Therefore the stock market effects may not be very large, for the reasons noted above. In summary, it would be an inefficient way to stimulate the economy.

Temporary cut. A temporary corporate tax rate cut would certainly be less costly from a fiscal point of view than a permanent corporate tax cut. But a temporary cut could actually be counterproductive from a stimulus point of view. A temporary rate cut would give businesses an incentive to *postpone* investment spending from today until after the rate cut expired. Capital expenditures generate income tax deductions, and those deductions are more valuable when the corporate tax rate is higher than when it is lower. A temporary corporate rate cut could thus provide an incentive to delay investments until the higher rate has been restored.

C. Incentives for new business investment

An alternative set of proposals would aim to stimulate business investment. These policies could include an investment tax credit or accelerated depreciation schedules (or expensing, a form of accelerated depreciation) for new investments. Of the business-oriented tax proposals currently under discussion, such temporary investment incentives are the most consistent with the principles delineated above.

²³ A temporary reduction in firms' payroll taxes (financed by general revenue) could be more effective in reducing layoffs. Although most economists agree that lower payroll taxes in the long term would result in higher after-tax wages for workers and little change in employers' overall labor costs, it takes time for wages to adjust to that new equilibrium. Thus, in the short term, it seems likely that reductions in employers' payroll taxes would not be passed along to workers. The reduction in labor costs per worker would provide an incentive for higher levels of employment than would otherwise be the case (regardless of whether the employer was currently profitable or unprofitable).

Direct investment proposals would be more effective in stimulating the economy than corporate tax rate cuts for two important reasons. First, unlike corporate tax rate cuts, which provide benefits to old investments as well as new investments, these investment incentives would only provide tax subsidies to new investments. Hence, they would likely generate a larger “bang-for-the-buck” than corporate tax rate cuts. Second, temporary corporate tax rate cuts encourage firms to postpone investments and other expenses, so as to declare more profits while the low tax rates exist and generate more deductions when high tax rates exist. In contrast, a temporary business investment incentive encourages firms to accelerate their future investments to today and thereby raise their current investments.

The precise form of a temporary investment incentive should reflect administrative and other issues. For example, some practitioners believe that accelerated depreciation or expensing may be slightly easier to implement than an investment tax credit. If so, and since the two approaches can produce the same incentive for new investments, the accelerated depreciation approach may be slightly preferable. Another key issue is what type of investment should qualify for the credit. Traditionally, most such proposals favor equipment over structures, and goods over services. It would be appropriate to consider whether such biases could be addressed or attenuated. Such issues are important and need to be addressed, but should not detract from the general point that a temporary investment incentive is the capital tax cut most consistent with the principles outlined in this paper.

Despite our preference for temporary investment incentives over other forms of tax cuts for capital as an economic stimulus, it is important to note that such incentives are not fool-proof. One problem is that their impact on investment may be limited.²⁴ A second problem is that, regardless of the average effect of such incentives over the business cycle, it is unclear how well such incentives work in times (such as the present) when businesses already have excess capacity and aggregate demand is falling. A third potential problem is that investment tax incentives may drive up the prices of investment goods, which would then limit the impact on investment.²⁵ This concern, however, seems unlikely to be relevant to current conditions, since the decline in investment recently appears to have created significant excess capacity in the capital industry. Fourth, if the incentive for new investment were temporary, it would have a bigger effect than a permanent incentive during the time period it operates, but it could also create a decline in investment after the period ends. Fifth, incentives for business investment apply to new investments that would have occurred anyway during the time period the incentives are in effect, as well as to investments that are only undertaken then because of the tax subsidy. The business incentives would be more efficient -- they would have a bigger “bang-for-the-buck” in stimulating the economy -- if they could apply only to new investment that would not have occurred immediately without the credit. This issue could be partially addressed by designing a subsidy only for investment above some firm-specific threshold (such as 80 percent of the firm’s average investment in the last three years), but such proposals have proven difficult to design and

²⁴ See, for example, Jason Cummins, R. Glenn Hubbard, and Kevin Hassett, “A Reconsideration of Investment Behavior Using Tax Reforms as Natural Experiments,” *Brookings Papers on Economic Activity*, 1994, and Robert Chirinko, Steven Farrazi, and Andrew Meyer, “How responsive is business capital formation to its user cost? An exploration with micro data?” *Journal of Public Economics* 74 (1999), pages 53-80, for different views on the effectiveness of investment tax credits.

²⁵ Austan Goolsbee, “Investment Tax Incentives, Prices, and the Supply of Capital Goods,” NBER Working Paper 6192, September 1997.

implement in the past. Sixth, as with corporate rate reductions, a temporary investment tax subsidy provides little or no additional incentive to invest to firms that are not profitable and therefore are not paying corporate income tax. Finally, to ensure the effectiveness of *temporary* investment incentives, lawmakers would have to emphasize their commitment to the measures as a one-time offer. If companies come to believe that incentives would be continued as part of frequent “extender” packages, the incentive to accelerate investment would be weakened and the danger that the market would raise interest rates (which would dampen demand in the short run) would be more substantial. Despite these caveats, a temporary investment incentive is more promising than other tax cuts on capital.

D. Another rebate for consumers

The declines in consumer confidence and consumer spending due to fears about travel security and a weakening labor market have led several members of Congress and policy advisors to call for a second round of consumer rebates as an effort to directly bolster consumer demand. Although the first round of \$300 and \$600 rebate checks were distributed in a more timely manner than many previous fiscal stimulus efforts, the impact was still less than had been hoped, since taxpayers receiving the checks appear to be saving a substantial percentage of the funds even before the terrorist attacks.²⁶

To ensure that a second round of rebate has more stimulative “bang for the buck” than the first round, policymakers need to consider several elements.

- Better Targeting: A Payroll Rebate. First, a second round of rebates should be better targeted to lower- and moderate-income families, who would generally have a higher propensity to spend the rebate checks. The first rebate was inefficiently targeted for two reasons. First, it was based on Federal income taxes. It therefore excluded 29 million low- and moderate-income families who paid payroll and excise taxes, but did not have enough income to owe Federal income taxes once deductions and credits were taken into account. Both common sense and empirical evidence reveal that families with lower incomes are more likely to spend, as opposed to save, any additional income.²⁷ Second, and relatedly, the first rebate checks were sent to all taxpayers, including higher-income families, who are least likely to spend the funds.

To ensure that a second rebate tax cut has a better stimulative impact (and is also more progressive), a second round of tax rebates should be based on employee Social Security and

²⁶ Research suggests that households spend in the current period between 20 percent and 70 percent of the temporary income tax cuts they receive. For example, see Alan S. Blinder, “Temporary Income Taxes and Consumer Spending,” *Journal of Political Economy*, February 1981, pages 26-53; James M. Poterba, “Are Consumers Forward Looking? Evidence from Fiscal Experiments,” *American Economic Review*, May 1988, pages 413-8; Matthew D. Shapiro and Joel Slemrod, “Consumer Response to the Timing of Income: Evidence from a Change in Tax Withholding,” *American Economic Review*, March 1995, pages 274-83; Nicholas Souleles, “The Response of Household Consumption to Income Tax Refunds,” *American Economic Review*, September 1999, pages 947-58; and Chris Carroll, “A Theory of the Consumption Function: With and Without Liquidity Constraints (Expanded Version),” mimeo, July 2001.

²⁷ See Karen E. Dynan, Jonathan Skinner, and Stephen P. Zeldes, “Do the Rich Save More?” NBER Working paper 7906, September 2000.

Medicare payroll taxes. A rebate based on payroll taxes would provide a tax cut to the 29 million workers who did not receive tax cuts in the first round and would lead to a greater stimulative “bang for the buck.” (Although the rebate would be *based* on payroll taxes, it should be financed through general revenues.²⁸) Furthermore, the stimulative effect could be even greater if the rebate were concentrated among lower and moderate income workers, rather than all workers.

- Administrative issues: Although basing the next round of tax cuts on payroll taxes would lead to greater stimulative “bang for the buck,” it may be more efficient to repeat the initial rebate, because the Internal Revenue Service could simply work off its existing mailing list and income information. The concern is that the IRS and Social Security Administration would not have enough information to determine who is paying Social Security and Medicare payroll taxes in a timely manner. It is not clear how significant this concern is. For example, a payroll-based rebate could be set as one amount for anyone with earnings over some minimum level in 2000, and could be based on W-2 information for calendar year 2000. This approach should allow tax rebates to be processed quickly, albeit with an accelerated effort by the government, and would provide clarity to families about the amount of their rebate.
- Timing: A Holiday Tax Rebate. One idea that could have a positive psychological and economic impact would be to time the rebate checks for the middle of the holiday shopping season. Holiday purchases of presents for friends and family are highly seasonal and should be relatively unaffected by the direct fear of terrorism. Intuitively, putting more resources in the hands of lower- and moderate-income families during the holiday season seems likely to bolster the volume of shopping during the holiday season. Shopping establishments -- which have already experienced one rebate round -- may be particularly astute about marketing sales and deals based on the rebates. The concentrated infusion of demand during the holiday season could encourage stores to employ the normal amount of temporary holiday help, which would also help to prop up demand.

IV. Conclusion

The current economic and budget outlook suggests the need to focus on policies that stimulate the economy in the short run and do not damage the long-term fiscal outlook, since any deterioration in long-run fiscal conditions could raise interest rates and dampen the stimulus effect in the short run. In evaluating stimulus packages, policy-makers should emphasize five principles: Allow only temporary, not permanent, items; set an overall stimulus budget; provide incentives for new investment, not old investment; design any individual income tax reductions to maximize effect on demand; and maintain long-term fiscal discipline. Policies that do not embrace these principles will generate weaker economic stimuli than those that do. There are

²⁸ The rebate could be implemented in several possible ways. One possibility is to impute payroll taxes from 2000 based on income tax returns. A second possibility is to accelerate Social Security’s processing of W-2s for 2000. A third possibility, which we would not endorse unless it were absolutely necessary for administrative reasons, is a temporary holiday on current payroll taxes. Under the third option, which should be avoided if at all possible, general revenue transfers would then protect the Trust Funds against the loss in revenue. The first and second options, although imperfect, appear much more attractive than the third option.

limits, however, to the effects of any type of tax cut in stimulating economic activity, particularly in times of uncertainty when people and firms are delaying major economic decisions.

Corporate tax rate reductions or capital gains tax cuts -- whether permanent or temporary -- are not consistent with the principles delineated above. A temporary incentive for new investment (whether in the form of accelerated depreciation or an investment tax credit), or another round of individual income rebates, are much more consistent with the principles. The emphasis on *temporary* stimulus measures is particularly important, to avoid an increase in long-term interest rates that could undermine the purpose of the stimulus package. Furthermore, a combined policy -- of temporary stimulus and long-term fiscal discipline -- would have a larger stimulative effect on the economy in the short run than a stimulus package itself, since it would prevent an increase in interest rates that could dampen economic activity in the short run.

Appendix 1: Corporate income tax cuts and the stock market

Proponents of corporate income tax reductions argue that the rate reductions would raise after-tax corporate earnings and thus boost stock market values. The increase in stock market values, according to this argument, would stimulate the economy by generating increased consumption (through the wealth effect) and increased investment (by inducing firms to issue new equity, which would then be used to finance investment). However, in addition to increasing after-tax corporate income, the corporate income tax reduction would also reduce public saving – and therefore could put upward pressure on real interest rates. An increase in interest rates, all else equal, reduces stock prices. Thus, a vigorous stock market increase in response to a corporate income tax reduction is by no means assured, as the following simplified calculation demonstrates.

For simplicity, assume that the stock price is equal to the present value of future after-tax corporate earnings. In other words:

$$P = \frac{(1-\tau)e}{r-g}$$

where P is the stock price, τ is the corporate tax rate, e is pre-tax earnings per share, r is the discount rate (that is, the interest rate at which investors in the stock market discount future earnings to determine a stock's value), and g is the growth rate of pre-tax earnings.²⁹ By itself, a decrease in τ raises $(1-\tau)e$, which causes an increase in P . But a decline in public saving from the loss of tax revenue would also raise r , which causes a decline in P . For some increase in r , these two effects would balance each other and P would not change. We therefore proceed in two steps. First, we estimate the increase in interest rates that would produce no change in P (because the higher interest rates offset the increase in after-tax earnings). Second, we compare that increase to the increase that would be expected from the loss of tax revenue associated with the corporate tax cut.

For P to remain constant, we require $\frac{(1-\tau_1)e_1}{r_1-g_1} = \frac{(1-\tau_2)e_2}{r_2-g_2}$, where the subscript 1 denotes a value before the reduction in the corporate tax rate and the subscript 2 denotes a value after the reduction. We assume that the corporate income tax cut does not affect pre-tax corporate earnings or their real growth rate. Thus $e_1 = e_2$ and $g_1 = g_2$. Stock prices would thus remain constant if $r_2^* = r_1 \left[\frac{1-\tau_2}{1-\tau_1} \right] + g \left[\frac{\tau_2-\tau_1}{1-\tau_1} \right]$.³⁰ To solve for r_2^* , assume that corporate income taxes are reduced from $\tau_1 = 0.35$ to $\tau_2 = 0.25$. Further assume that $r_1 = 0.07$ and

²⁹ A more precise model (e.g., which incorporated a dividend payout assumption, debt-equity distinctions, individual-level taxation, and average corporate tax rates rather than marginal corporate tax rates), would likely *reduce* the increase in interest rates required for stock values to remain constant. This simplified approach, if anything, likely biases us toward finding a stock market increase.

³⁰ If r_2 rises above r_2^* , stock prices would decline, and if r_2 remained below r_2^* , stock prices would increase.

$g=.025$.³¹ Then $r_2^* = .07 \left[\frac{1-.25}{1-.35} \right] + .025 \left[\frac{.25-.35}{1-.35} \right] = .0769$. In other words, an increase in the discount rate from 7.0 percent to 7.69 percent – or an increase of 69 basis points – would prevent an increase in the stock price. Assuming that the equity premium is unaffected by the corporate rate cut, a 69 basis point increase in interest rates would generate a 69 basis point increase in the discount rate applied to equities.³² The key question is thus whether a reduction in corporate income tax rates would be expected to produce an increase in interest rates of that magnitude.

The corporate income tax is projected to produce revenue of approximately 1.9 percent of GDP over the next 10 years.³³ Reducing the corporate income tax from 35 percent to 25 percent (and proportionately reducing corporate rates at lower income levels) would therefore reduce public saving by slightly more than 0.5 percent of GDP ($=10/35*1.9$).³⁴ In 1994, the Council of Economic Advisers estimated that an increase in public saving of 1.75 percent of GDP would reduce real interest rates by 200 basis points.³⁵ The implication is that a reduction in public saving of slightly more than 0.5 percent of GDP would raise real interest rates by slightly more than 60 basis points. Professor Martin Feldstein of Harvard University has similarly found that “Each percentage point increase in the five-year projected ratio of budget deficits to GNP raises the long-term government bond rate by approximately 1.2 percentage points...”³⁶ A reduction in tax revenue of slightly more than 0.5 percent of GDP would therefore be predicted to raise interest rates by roughly 60 basis points. In other words, the predicted increase in interest rates is roughly in line with the increase that would prevent an increase in stock prices.

The conclusion from this simplified exercise is that a reduction in the corporate income tax rate from 35 percent to 25 percent would be expected to increase interest rates by roughly 60 basis points. That increase would offset most, if not all, of the upward pressure on stock prices from the tax cut. It is thus not clear that stock prices would increase substantially in response to the corporate income tax cut.

³¹ These assumptions are roughly consistent with historical averages and produce a price-earnings ratio of about 20 (where the price-earnings ratio is defined, as is typical, as $\frac{P}{(1-\tau)e}$), which is consistent with the observed value.

Note that a higher assumed g would reduce r_2^* .

³² In other words, $r = r_g + \theta$, where r is the real discount rate applied to equities, r_g is the real risk-free (government bond) interest rate, and θ is the equity premium. Assuming that the equity premium is unaffected, the change in r is therefore equal to the change in r_g .

³³ Congressional Budget Office, *The Budget and Economic Outlook: An Update*, August 2001, Table 1-2.

³⁴ The precise revenue cost would depend on assumptions regarding interactions with the corporate Alternative Minimum Tax and shifts in corporate form between S-corporations and C-corporations.

³⁵ Council of Economic Advisers, *Economic Report of the President*, February 1994, pages 81-87. The estimates are based on the Solow model of long-term economic growth.

³⁶ Martin Feldstein, “Budget Deficits, Tax Rules, and Real Interest Rates,” Working Paper No. 1970, National Bureau of Economic Research, July 1986, page 48.

Appendix 2: Investment, the corporate income tax, and a temporary investment tax credit

This appendix uses an illustrative set of examples to examine the relative impact of permanent corporate income tax cuts and temporary investment tax credits on the cost of new capital investments for corporations and on budgetary outcomes. It makes three main points:

- First, ignoring any induced changes in interest rates, corporate income tax cuts are a much more expensive way to stimulate new investment than an investment tax credit (ITC). Corporate rate cuts cost more than ten times as much.
- Second, allowing for interest rate effects magnifies the inefficiency of corporate tax cuts. By raising long-term interest rates, corporate tax cuts indirectly raise the cost of capital in a manner sufficient to eliminate more than half the direct reduction in the cost of capital caused by the rate cuts. As a result, allowing for interest rate effects, the corporate tax rate cuts cost about 35 times as much as a temporary ITC that would give the same reduction in the cost of new investment.
- Third, for a given reduction in the cost of new capital investment, a *temporary* ITC will have a bigger impact on investment than a permanent measure, because it reduces the cost of investment now relative to future years. Firms therefore have incentives to accelerate investment over time.

We emphasize that these calculations are illustrative; the important conclusion is not the precise ratios, but that the costs of a permanent corporate tax rate cut would vastly exceed the costs of a temporary investment tax credit with the same incentive for new investment. Nevertheless, this simplified exercise highlights the fundamental benefit of targeting any incentive on *new* investment and ensuring that any stimulus is temporary (while combining it with long-term fiscal discipline). By preventing an increase in interest rates, the combined approach ensures that the benefits of the short-term stimulus are not dissipated by the negative effects of higher interest rates.

Background

Economists typically evaluate the effect of tax policy on investment behavior using the concept of a “user cost of capital,” which is the expected real cost of using a unit of capital for a specific period of time.³⁷ The lower the user cost of capital, all else equal, the higher investment will be. The user cost of capital is defined as:

$$c = \frac{P_k(1 - k - \tau(1 - k)z) \left[r - \frac{dP_k}{P_k} + d \right]}{(1 - \tau)}$$

where c is the user cost of capital, P_k is the cost of purchasing a unit of capital, k is an investment tax credit (which is assumed to reduce the firm’s depreciable basis), τ is the marginal corporate

³⁷ See Robert Hall and Dale Jorgensen, “Tax Policy and Investment Behavior,” *American Economic Review* (June 1967), pages 391-414.

tax rate, r is the interest rate, z is the present value of depreciation allowances from a dollar of investment, $\frac{dP_k}{P_k}$ is the real percentage price gain from owning a unit of capital, and d is the economic depreciation rate.

Step 1: Assuming no change in interest rates

The first issue we analyze is what investment tax credit would produce an equal reduction in the user cost of capital as a corporate rate reduction, assuming no change in interest rates. In particular, the user cost of capital would fall in response to a reduction in the marginal corporate tax rate from 35 percent to 25 percent (assuming no change in interest rates). We then compute the investment tax credit that would result in the same reduction in the user cost of capital if the corporate rate remained 35 percent.

To undertake the calculations, we assume that $z=0.7$ (which is roughly the average of the individual values of z for equipment and structures), $d=.1$ (which is also roughly the average of the individual rates of depreciation for equipment and structures),³⁸ that capital prices do not change in real terms (so that $\frac{dP_k}{P_k}=0$) and are not affected by the corporate rate reduction,³⁹ and that $r=.07$.⁴⁰

Under these assumptions, reducing the marginal corporate tax rate from 35 percent to 25 percent reduces the user cost of capital by roughly 5 percent:

$$\frac{\Delta c}{c} = \frac{(1 - .25 * 0.7)}{(1 - .35 * 0.7)} - 1 = \frac{.75}{.65} - 1 = 0.947 - 1 = -.053$$

An investment tax credit (with full depreciable basis offset) of 5.3 percent would reduce the user cost of capital by an equivalent amount. In particular, consider a temporary investment

³⁸ The underlying data on z and d for equipment and structures are based on communication with Jane Gravelle of the Congressional Research Service, September 28, 2001.

³⁹ These assumptions are adopted for simplicity. Some evidence suggests that investment tax credits (and presumably other preferences for capital investment) could raise the price of capital goods in the short run, which then restrains the short-run impact on investment. See, for example, Austan Goolsbee, "Investment Tax Incentives, Prices, and the Supply of Capital Goods," NBER Working Paper 6192, September 1997. If the price of new capital rose in response to the corporate tax reduction, the user cost of capital would be even less likely to fall -- and therefore investment would be even less likely to rise -- than under the assumption of a fixed price of capital. Any such increase in the price of capital, it should be noted, would also limit the effectiveness of an investment tax credit or accelerated depreciation. But it seems unlikely that the price of capital would rise significantly in response to a tax incentive under current conditions, since investment has recently fallen substantially and many capital suppliers have significant excess capacity.

⁴⁰ This value of r assumes that all investment is financed with equity. Including corporate debt finance would complicate the analysis but not change any of the fundamental conclusions.

tax credit of $k=0.053$ (so that the credit were equal to 5.3 percent of the purchase price of capital). Relative to $k=0$, the percentage reduction in the user cost of capital is:

$$\frac{\Delta c}{c} = \frac{(1-0.053)(1-0.35*0.7)}{(1-0.35*0.7)} - 1 = 0.947 - 1 = -.053$$

Note, however, that these two approaches to reducing the user cost of capital entail dramatically different revenue costs. The corporate rate reduction would reduce tax revenue by \$700 billion over 10 years, whereas a temporary investment tax credit of 5.3 percent would reduce revenue by only about \$50 billion over 10 years.⁴¹ The corporate rate reduction is thus more than ten times as expensive as a temporary ITC with the same incentive for new investment. The reason is that the corporate rate reduction subsidizes returns on old investment as well as new investment, whereas the ITC targets its incentives on new investment.

Step 2: Incorporating the change in interest rates

The analysis above does not incorporate the effect on interest rates from reduced corporate revenue. Appendix 1 cites estimates that a reduction in revenue of roughly \$700 billion over 10 years would raise interest rates by about 60 basis points or so. Assuming that a corporate rate reduction from 35 percent to 25 percent raises interest rates by 60 basis points, the net effect would be reduction in the user cost of capital of only 2 percent:

$$\frac{\Delta c}{c} = \frac{(1-0.25*0.7)[.076+.1]}{\frac{0.75}{(1-0.35*0.7)[.07+.1]} - 1} - 1 = -0.98 - 1 = -0.02$$

0.65

A temporary investment tax credit, on the other hand, would involve minimal long-term costs and therefore should have no appreciable effect on interest rates. A temporary investment tax credit of 2 percent could accomplish the same reduction in the user cost of capital as a corporate rate reduction once the impact on interest rates is incorporated into the analysis:

$$\frac{\Delta c}{c} = \frac{(1-0.02)(1-0.35*0.7)}{(1-0.35*0.7)} - 1 = 0.98 - 1 = -.02$$

The cost of a 2 percent ITC is only about \$20 billion over 10 years. The corporate rate reduction is thus roughly 35 times more expensive over the next ten years than a temporary ITC with the same investment incentives, once interest rate effects are incorporated.

⁴¹ Preliminary estimates suggest that a one-year investment tax credit (with qualifying investment defined as under the investment tax credit in existence in 1985 and full basis offset) of 7 percent would reduce revenue by approximately \$70 billion (before interest costs) over ten years. An investment tax credit of 5.3 percent should therefore reduce revenue by roughly \$50 billion over ten years.

Step 3: Temporary vs. permanent changes

Finally, for any given reduction in the user cost of capital, a temporary ITC will have a larger effect on *current* investment than a permanent tax incentive, because a temporary measure reduces the cost of current investment relative to future investment. The temporary measure thus encourages firms to accelerate their investment plans, whereas a permanent measure does not.