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A SHORT GUIDE TO DYNAMIC SCORING

by Jason Furman

In recent years, official scorekeepers and academic researchers have devoted increased attention to the macroeconomic effects of tax cuts. The Treasury also conducted a “dynamic analysis” of the President’s tax cuts that was included in this year’s Mid-Session Review of the budget as well as in a separate Treasury report.¹ The results of much of this work indicate that tax cuts can have *positive* or *negative* effects on the economy, with the “sign” of the effects depending on a number of variables, the most important of which is whether and how the tax cuts are paid for.

The Congressional Budget Office, the Joint Committee on Taxation (JCT), and academic researchers have all have found that tax cuts that are *not* accompanied by offsetting revenue increases or spending reductions — and are financed by borrowing instead — can *harm* the economy over the long term. The research, including the Administration’s own analysis, also indicates that even if tax cuts are paid for, the economic benefits generally are relatively modest, with any increased revenues that result from stronger economic growth offsetting only a small fraction of what conventional cost estimates indicate the tax cuts will cost.

This short guide to dynamic scoring makes six points:

- **JCT and Treasury tax estimates already include “dynamic” scoring components.** The official cost estimates that the Treasury and Congress’ Joint Committee on Taxation produce for tax-cut legislation are “dynamic” scores in that they incorporate changes in behavior that are expected to occur as a result of the proposed tax cuts. Such behavioral reactions include, for instance, changes expected in the timing of the capital gains realizations and changes in the form of compensation (e.g., from benefits to wages or vice versa). At the same time, the official cost estimates do *not* assume that major macroeconomic conditions like GDP and employment will be altered by tax changes.
- **Tax cuts do not pay for themselves.** Economists of all stripes have consistently found that tax cuts do not generate enough growth to fully pay for themselves. In fact, cost estimates that incorporate macroeconomic feedback from tax cuts are reasonably close to conventional cost estimates that ignore such feedback. For example, two recent dynamic-scoring estimates by CBO showed that the President’s proposal to make the 2001 and 2003 tax cuts permanent,

¹ For more on the Treasury study of the President’s tax cuts, see Jason Furman, “Treasury Dynamic Scoring Analysis Refutes Claims by Supporters of the Tax Cuts,” Center on Budget and Policy Priorities, revised August 24, 2006.

together with the President's other tax and spending proposals, would cost anywhere from 3.9 percent less to 0.4 percent more than the conventional cost estimates. This represents only a small margin of difference from the conventional cost estimates. The Administration's own estimates published in the Mid-Session Review indicate that, even with favorable assumptions, dynamic feedback would pay for less than 10 percent of the cost of making the tax cuts permanent. (See box on page 5.)

- **The long-run macroeconomic effects of tax cuts can be either positive or negative, depending on how and when they are paid for.** The most critical assumption in an economic model is how and when tax cuts are paid for. Generally research has found that tax cuts that are not accompanied by other tax increases or spending cuts — such as the tax cuts that have been enacted in recent years — will increase the deficit, reduce national savings, and ultimately reduce economic growth. In contrast, tax cuts that are paid for contemporaneously can contribute to economic growth. In neither case are the economic effects very large.
- **The particular models and assumptions used by the Joint Committee on Taxation and the Congressional Budget Office generally find that income tax cuts are more beneficial — or less harmful — in the short run than the long run.** The particular models and assumptions generally used by JCT and CBO often show modestly positive effects of income tax cuts in a five- or ten-year period, due in part to initial stimulus effects, but then show these gains being dissipated or even reversed in the long run, as the adverse effects of deficit-financing the tax cuts in the years following their enactment gradually take hold.²
- **You cannot use actual revenue levels from particular years to estimate macroeconomic feedback effects.** Some have argued that positive revenue surprises in one or two years are evidence of major dynamic scoring effects. This claim ignores the fact that federal revenues are highly volatile and can swing from year to year for a variety of reasons unrelated to tax cuts. Over the past 25 years, actual revenues in a given year have averaged *\$150 billion* (in today's terms) *above or below* the revenue levels that CBO predicted a year in advance.

In contrast, even an optimistic reading of the dynamic effects of the 2003 dividend and capital gains tax cuts would lead to an estimate of less than \$5 billion in added revenue, relative to the conventional estimates of the costs of these tax cuts. It thus makes little sense to use data from one or two years to claim extraordinary dynamic scoring effects for tax cuts.

Moreover, in the 1990s, tax revenues exceeded expectations in the years that followed large tax *increases*. And revenues fell well *below* expectations in the years of this decade that followed large tax cuts. Differences between the revenue forecasts that were made and the subsequent, actual revenue levels could as easily be used to construct a case that tax cuts have dynamic effects that *harm* the economy and slow revenue growth as to construct the rosy case that tax-cut proponents make.

- **Distributional analysis of tax cuts should incorporate the same financing assumptions as dynamic analysis of tax cuts' costs.** All tax cuts must be paid for eventually, since it is not possible to explode the deficit and debt without limit. Macroeconomic models make a variety

² In many theoretical analyses, however, the opposite is true: tax cuts — particularly reductions in capital taxation — have initial small effects that grow over time.

of assumptions about how tax cuts will be paid for. These same assumptions should be used in presenting distributional analysis of tax cuts.

For example, some analyses that show positive economic effects from the recent tax cuts use the assumption (without highlighting it) that the tax cuts will be fully paid for with across-the-board reductions in benefits and transfer payments, including Social Security and Medicare. Whatever assumptions are made in assessing economic impacts also should be used in assessing the distributional impact that tax cuts would have. Some tax-cut proponent use models that assume the tax cuts are paid for when claiming positive dynamic effects, but then use distributional estimates that are based on the assumption that the tax cuts are *not* paid for and are essentially a “free lunch.”

This analysis now examines these points in more detail.

JCT and Treasury Tax Estimates Already Include “Dynamic Scoring” Components

The official revenue estimates of tax-cut proposals issued by the Joint Committee on Taxation (JCT) and Treasury’s Office of Tax Analysis (OTA) already assume a wide range of behavioral changes. As JCT explains,

[C]onventional revenue estimates prepared by the Joint Committee staff should not be confused with “static” revenue estimates. Joint Committee staff revenue estimates always take into account many likely behavioral responses by taxpayers to proposed changes in tax law. Such behavioral effects incorporate or include shifts in the timing of transactions and income recognition, shifts between business sectors and entity form, shifts in portfolio holdings, shifts in consumption, and tax planning and avoidance strategies.³

For example, most economists believe that reductions in income tax rates lead to changes in behavior, including reduced tax avoidance and the shifting of compensation from untaxed fringe benefits like health insurance and pensions to taxable wages. These effects, which offset about 20 percent of the “static” cost of an income-tax cut, are incorporated in all official JCT and Treasury estimates.⁴

Similarly, most economists believe that taxpayers alter the timing of their capital gains realizations in response to changes in capital gains tax rates. For example, if capital gains rates are temporarily lowered — as they were under laws enacted in 2003 and earlier this year — taxpayers will react by selling assets earlier, partially or even completely offsetting the *short-run* reduction in revenues associated with the lower tax rates. For example, a “static” cost estimate of the capital gains tax cut enacted in 2003 would have been about \$80 billion over ten years, substantially higher than JCT’s

³ JCT, “Exploring Issues in the Development of Macroeconomic Models for use in Tax Policy Analysis,” June 16, 2006.

⁴ Robert Carroll and Warren Hsung, “What Does the Taxable Income Elasticity Say About Dynamic Responses to Tax Changes,” *American Economic Review Papers and Proceedings*, Vol. 95, No. 2, May 2005.

official estimate of \$22 billion. (Note: Both numbers are artificially low because they assume that the tax cut is sunset in 2008.)⁵

The “dynamic” effect of capital gains tax cuts on capital gains “realizations” (i.e., on the sale of capital assets) is largest in the short run. Increased capital gains realizations in the short run reduce short-term revenue losses, but lead to fewer capital gains — and hence even larger revenue losses — in the long run. As CBO explains,

The sensitivity of realizations to gains tax rates raises the possibility that a cut in the rate could so increase realizations that revenue from capital gains taxes might rise as a consequence. Rising gains receipts in response to a rate cut are most likely to occur in the short run. Postponing or advancing realizations by a year is relatively easy compared with doing so over much longer periods. In addition, a stock of accumulated gains may be realized shortly after the rate is cut, but once that accumulation is “unlocked,” the stock of accrued gains is smaller and realizations cannot continue at as fast a rate as they did initially. Thus, even though the responsiveness of realizations to a tax cut may not be enough to produce additional receipts over a long period, it may do so over a few years. *The potentially large difference between the long- and short-term sensitivity of realizations to tax rates can mislead observers into assuming a greater permanent responsiveness than actually exists*⁶ (emphasis added).

Treasury and JCT estimates of the cost of tax cuts assume that macroeconomic aggregates — like GDP and employment — are not changed. This is sometimes referred to as “static scoring,” although a more accurate description would be “dynamic micro, although static macro scoring.” As discussed in more detail below, there are sound reasons for this omission, and in any event, including macroeconomic feedback effects would not change the official revenue estimates very much. As CBO explained in the context of a capital gains tax cut:

Critics often claim that the omitted feedback effects on output, and thus revenues, are substantial, and that not taking them into account both biases policy against cuts in capital gains taxes and contributes to large forecasting errors. Yet feedback effects on growth are likely to be small.⁷

(Note that OMB and CBO baseline budget projections of government expenditures, revenues and the deficit are based on economic forecasts that incorporate OMB’s and CBO’s assessments of the macroeconomic effects of current laws.⁸ If OMB and CBO believe there is macroeconomic feedback as a result of various pieces of legislation that have been enacted, they will seek to incorporate those feedback effects into their baseline economic forecasts and hence into their baseline revenue projections as well. The fact that fiscal year 2006 revenues now are expected to be higher than CBO projected in January does not demonstrate that CBO failed to do any dynamic estimating. CBO’s January 2006 estimates already included the macroeconomic effects that CBO

⁵ JCT, “Estimated Budget Effects of the Conference Agreement for H.R. 2,” May 22, 2003.

⁶ CBO, 2002

⁷ CBO, 2002

⁸ In theory, the OMB baseline includes estimates of the macroeconomic effects of the President’s policy proposals.

The Administration's Dynamic Analysis Finds that the Bush Tax Cuts Will Pay For Less Than 10 Percent of Their Cost

The Treasury Department conducted a dynamic analysis of the President's tax cuts that was included in this year's *Mid-Session Review* of the budget. Although the Treasury analysis does not explicitly present estimates of the amount of revenue "feedback" the tax cuts would produce, an analysis of the Treasury study conducted by the non-partisan Congressional Research Service (CRS) finds, "The [Treasury's] base case estimates suggest that the induced effect on output were the tax cuts to be extended would lead to a revenue offset of 7% of the initial cost" and 10 percent of the steady-state cost.^a (Note that the Treasury's "base case" scenario makes the unrealistic assumption that the tax cuts will be paid for by spending cuts equivalent in magnitude to cutting domestic discretionary spending in half starting in 2017.)

One can readily derive an estimate of the amount of additional revenue that would result from the increased economic growth the Treasury study predicts by comparing the cost of the tax cuts in the absence of these dynamic effects to the added revenue that would result from the increase in economic output that the study assumes. According to CBO's official cost estimate, the Administration's proposal to make permanent the tax cuts enacted since 2001 would cost 1.4 percent of GDP annually. (This does not include the AMT relief that the Administration proposes on an annual basis, which would bring the total cost to 2 percent of GDP.) According to the new Treasury study, the tax cuts would have economic effects that would raise national income by up to 0.7 percent over the long term. With tax receipts projected to equal about 18 percent of GDP, this translates into an increase in revenues, as a result of the increased economic growth, of up to 0.13 percent of GDP — an amount that is less than one-tenth of the 1.4 percent of GDP estimate of the tax cuts' cost.

In other words, under the optimistic dynamic-scoring scenario that the Administration presents, the tax cuts still would cost about 1.27 percent of GDP annually, or more than 90 percent of the conventional estimate of the tax cuts' cost.

^a Jane Gravelle, Congressional Research Service, "Comments on the Treasury Dynamic Analysis of Extending the Tax Cuts," July 27, 2006.

expected to occur as a result of tax cuts and other factors to the extent that CBO was able to quantify them.)

Tax Cuts Do Not Pay For Themselves

Every official scoring agency and credible economist has consistently stated that tax cuts do not pay for themselves through stronger growth. For example, the 2003 *Economic Report of the President* stated, "Although the economy grows in response to tax reductions (because of higher consumption in the short run and improved incentives in the long run), it is unlikely to grow so much that lost revenue is completely recovered by the higher level of economic activity."⁹ Similarly, in his leading economics textbook, former Bush CEA Chairman N. Gregory Mankiw wrote that there is "no credible evidence" that "tax revenues ... rise in the face of lower tax rates." He compared economists who say that tax cuts pay for themselves to a "snake oil salesman who is trying to sell a miracle cure."¹⁰

⁹ 2003, *Economic Report of the President*.

¹⁰ N. Gregory Mankiw, *Principles of Economics* (Fort Worth, TX: Dryden, 1998), pp. 29-30.

Not only do tax cuts not pay for themselves, but most analysts believe that conventional cost estimates that ignore macroeconomic feedback are reasonable approximations of fully dynamic scores. The dynamic estimates in the Administration's latest *Mid-Session Review*, for example, indicated that over the long run, dynamic effects will offset less than 10 percent of the conventional cost of the Administration's tax cuts (see the discussion in the box on this page). Former CBO Director Rudolph Penner, for example, recently commented that "for a very long time, the Congress will have to be satisfied with static scoring. That is not so bad. The CBO's dynamic analysis suggests that static scoring is usually pretty accurate."¹¹

CBO's estimates of the impact of President Bush's fiscal year 2007 budget provides an illustration. According to CBO's official estimates, the President's tax proposals — the largest of which would make most of the 2001 and 2003 tax cuts permanent — would reduce revenue by \$1,744 billion over ten years, relative to the baseline. The Administration's spending proposals, excluding net interest, would reduce outlays by \$512 billion relative to the baseline.¹² These official estimates exclude any macroeconomic feedback from the impact of the President's proposals on economic growth. To assess the macroeconomic feedback, CBO presented 12 different sets of results, reflecting different economic models, parameters and assumptions.¹³

In none of the 12 cases do the results differ substantially from the conventional cost estimates. Consider for example, the two scenarios that use a "textbook model," with different assumptions about the responsiveness of hours worked to tax rates:¹⁴

- **Assuming hours worked are very responsive to tax cuts.** Under this assumption, CBO finds that the President's budget proposals would increase GDP by 0.2 percent from 2012-16. Taking into account this macroeconomic feedback, CBO estimates the President's proposals would increase the deficit by \$1,298 billion from 2012-16, compared to \$1,351 billion using the conventional scoring methodology that ignores macroeconomic feedback. In other words, dynamic scoring offsets just 3.9 percent of the conventional estimates.
- **Assuming hours worked are not very responsive to tax cuts.** Using this assumption, CBO finds that the President's proposals would *reduce* GDP by 0.1 percent from 2012-16. The macroeconomic feedback would *increase* the deficit impact of the President's tax cuts and other proposals by 0.4 percent.

¹¹ Rudolph Penner, "Dynamic Scoring: Not So Fast!" Tax Policy Center, April 21, 2006

¹² Note that CBO's baseline assumes that spending on Iraq and Afghanistan will continue at current levels, totaling \$827 billion over the next decade. The President's fiscal year 2007 budget does not propose future spending for these conflicts. As a result, CBO's estimate of the President's spending reductions reflects the combined effect of a baseline that assumes unrealistically high spending in Iraq and Afghanistan and the administration's fiscal year 2007 budget, which proposes impossibly low spending for these conflicts.

¹³ Note that CBO's estimates are for the President's full budget proposal, not just the proposed tax cuts. Relative to CBO's baseline, the President has proposed \$1,744 billion in tax cuts and \$512 billion in reductions in outlays (excluding net interest).

¹⁴ The other CBO scenarios all assume tax increases or spending cuts after 2016. In these cases, the short-run results presented by CBO reflect timing shifts in work and savings behavior and are not a very good guide to the long-run impacts of the President's tax-cut proposals. See a further discussion on this below.

Even analyses that produce rosier estimates of the effects of tax cuts conclude that tax cuts do not pay for themselves. For example, a paper by Mankiw and Matthew Weinzierl used a standard neoclassical economic growth model to examine revenue-neutral tax reform under which taxes on labor or capital are reduced and these changes are paid for contemporaneously by increases in lump-sum taxes or reductions in lump-sum transfers like Social Security. They found that the macroeconomic feedback reduced the present value of the cost of the labor tax cut by 15 percent and the cost of the capital tax cut by 33 percent. Even in this best case scenario, under which tax cuts are paid for without increasing the deficit, the substantial majority of the conventional cost estimate remains intact.

The Long-Term Macroeconomic Effects of Tax Cuts Can Be Positive or Negative, Depending on How and When They Are Paid For

As illustrated above, estimates of the macroeconomic effects of tax cuts depend on the particular economic model being used and the specific parameters assumed for that model. In the absence of an economic consensus on the correct model and parameters, official scorekeepers have been reluctant to provide a single, featured dynamic estimate. Many policy analysts have argued that this course of action by the scorekeepers is appropriate. For example, former CBO Director Rudolph Penner wrote:

Dynamic scoring would force analysts to make many more judgment calls than they do today. Quality control would be difficult, and that implies a high risk that ideological biases will pollute the analysis... There may come a day when there is sufficient agreement about dynamic effects to automate the process using powerful computers. But we are many decades from such technology.¹⁵

Even with sufficient agreement among economists about the correct models and parameters, there would still be a major hurdle in implementing and interpreting dynamic scoring: the economic impact of tax cuts depends critically on how and when tax cuts are paid for. In a sense, tax-cut proposals are incomplete and thus impossible to subject to dynamic scoring. For example, taken literally, the President's fiscal year 2007 budget proposal would result in an explosion of deficits and debt that would last forever (on top of the already unsustainable fiscal situation). Not only is this impossible, but it also makes it impossible to use modern economic models to estimate the macroeconomic impact of those policies.¹⁶

Economic models of the macroeconomic effects of tax cuts must reflect both the proposed policy and an assumption about how and when the policy will be paid for. Consequently, the results of these models often tell less about the proposed policy itself (e.g., the Administration's tax cuts) and

¹⁵ Penner, *op. cit.*

¹⁶ Modern economic models assume that individuals and businesses are forward looking, changing their behavior in response to expectations about future taxes, transfers such as Social Security, and government spending. Since an infinite explosion of the debt is impossible, individuals will not be able to decide how to behave without an assumption about the future policy changes that will be implemented to prevent an explosion of the debt. As a result, modern economic models can not estimate even the *short-run* impact of a tax proposal without making assumptions about the full *long-run* policy.

TABLE 1
JCT Estimates of the Impact of a 10 Percent Income Tax Cut on Long-Run GDP
(Estimates Using an Overlapping Generations Model)

<u>Financing Assumption</u>	<u>Impact on Long-Run GDP</u>
Cut non-valued government spending after ten years	-0.04%
Cut government transfer payments after ten years	+0.10%
Increase tax rates on labor income after ten years	-0.10%
Increase tax rate on capital income after fifteen years	-0.43%
Cut government transfer payments after twenty years	-0.21%

Source: JCT 2006, Table 3.

more about the other policies that are assumed in the model (i.e., the assumptions about how and when the tax cuts will be paid for).

Generally, research has found that tax cuts that are not accompanied by other tax increases or spending cuts — such as the recent Bush tax cuts — will increase the deficit, reduce national savings, and reduce economic output over the long run. This occurs because any economic benefits that tax cuts have in encouraging work and personal savings are more than offset by the economic cost of the larger deficits, which reduce national savings. In contrast, tax cuts that are paid for contemporaneously can contribute to economic growth, depending on their design. In neither case are the effects very large. (Note that dynamic scoring models do not address the possibility that cuts in government funding for research, education and other investments that could be made to help pay for tax cuts might slow long-run growth.)

For example, JCT used what economists call an “overlapping generations model” to examine the economic impact of a hypothetical 10 percent reduction in individual income tax rates. In four of JCT’s five financing scenarios, the tax cuts *reduced* long-term GDP:

These results show that the longer you wait to pay for the cuts, the more negative the long-term economic effects. If, for example, Social Security payments are cut enough to fully pay for the hypothetical 10-percent rate reduction after ten years, the proposal would increase long-run GDP by 0.1 percent. But waiting 20 years would lead to larger government debt and *reduce* long-run GDP by 0.21 percent.

A CBO analyst presented similar results in a recent conference sponsored by the Brookings Institution and the Heritage Foundation. The results showed that a hypothetical 10-percent reduction in income tax rates would reduce long-term output if the tax cuts were financed by reductions in government consumption or increases in income tax rates that started after ten years. CBO also found that the tax cuts would make a modest contribution to higher output if they were financed by *immediate* reductions in government spending or by reductions in government transfer payments starting after ten years.¹⁷

¹⁷ Similarly, a recent academic paper by Eric Leeper and Shu-Chun Susan Yang found that, “a debt-financed tax cut does not always have the positive growth effects obtained in neoclassical models without debt... there is no guarantee that static estimates of revenue effects of tax cuts, which assume no feedback from changing tax bases, necessarily overstate the revenue loss.” Eric Leeper and Shu-Chun Susan Yan, “Dynamic Scoring: Alternative Financing Schemes,” NBER Working Paper No. 12103, March, 2006.

Analysts have focused on modeling income tax *cuts*. Most of these economic models also imply, however, that income tax *increases* would raise long-run national income if the tax increases were used to reduce the deficit rather than to expand government spending.

Models Generally Find Income Tax Cuts Are More Beneficial — Or Less Harmful — In the Short Run

CBO and JCT modeling have generally found that income tax cuts contribute more to GDP in the short run than in the long run.¹⁸ In some cases, income-tax cuts can raise output for several years after being enacted but reduce revenues in the following years.

This is important to keep in mind because the macroeconomic estimates that CBO occasionally produces often cover only ten-year periods. CBO analysts have warned that these estimates are not representative of the more important long-run impact of the tax cuts and have shown examples where the published 10-year estimates show a positive impact on GDP but the long-run results of the same models show a negative impact.

In part, the more favorable short-run estimates of the impact of tax cuts are grounded in economic logic. A tax cut may have some initial stimulus impact for the first year or two, although the magnitude of the stimulus effect is muted in models that realistically assume that the Federal Reserve will follow its typical course and respond to the rising inflation and falling unemployment generated by the fiscal stimulus by setting interest rates somewhat higher than it otherwise would have. (Models that assume that the Federal Reserve does not change its behavior in response to tax cuts, including the one published in the *Mid-Session Review*, are likely to overstate the short-run benefits of tax cuts.) In addition, some of the benefits of tax cuts — like encouraging modestly more hours of work — are assumed to happen almost immediately, while the harm associated with the larger debt that results from the tax cuts builds up gradually over time.

But in large part, the more favorable short-run estimates of the impact of tax cuts are, as the CBO and JCT modelers acknowledge, artifacts of the specific modeling assumptions. Specifically, the models CBO and JCT use generally assume that tax cuts are paid by cutting spending or raising taxes starting abruptly after ten years. As JCT explains, “People work and save more over the first ten years in anticipation of a future loss of valued spending or tax increases, because they recognize the need to accumulate more assets against the anticipated lean period later in their life cycle.”¹⁹ Although delaying the financing may extend the positive work and savings incentives from tax cuts, the models all show that these modest benefits for individuals are ultimately more than offset by the increases in the deficit and consequent reductions in national savings.

Not all theoretical models of tax cuts have this feature, however. For example, a number of dynamic scoring estimates of capital tax cuts find the economic gains grow over time.

¹⁸ This is not true in all models or for all tax cuts. For example, Mankiw and Weinzierl ignore business-cycle effects and find that the macroeconomic benefits of capital tax cuts grow over time.

¹⁹ JCT 2006, *op. cit.*

The Uncertainty In Revenue Projections Is Considerably Larger Than the Macroeconomic Feedback Effects

Some have tried to infer dynamic scoring effects based on actual revenue data from selected years. For example, the fact that revenues in fiscal year 2006 are coming in higher than was predicted at the start of the year is being touted as an example of the importance of macroeconomic feedback in assessing the impact of tax cuts on the budget. This conclusion is misguided.

Revenues are highly volatile and respond to a large range of factors, including overall macroeconomic performance, the level of income inequality, and increases in health insurance premiums. Accurately projecting these variables is virtually impossible. Over the past 25 years, CBO's projection of the level of revenues that will be collected in the following fiscal year has been either too high or too low by an average of 6.1 percent, which is the equivalent of an overestimate or underestimate of \$150 billion in fiscal year 2006.²⁰ These projections have been just as likely to overstate revenues (i.e., to be too high) as to understate them.²¹

In contrast, the optimistic assumptions used in the model described in the aforementioned paper by Mankiw and Weinzierl suggest that the dynamic effect of the dividend and capital gains tax cuts enacted in 2003 will amount to added revenue (relative to the level of revenue projected under conventional cost estimates) of less than \$5 billion in fiscal year 2006.²² Including all of the tax cuts enacted since 2001, which total about \$200 billion in fiscal year 2006, might bring the total dynamic effect to as much as \$20 billion. Attempting to detect dynamic effects this small is nearly impossible when revenue levels are affected to a vastly greater degree by other factors.

Furthermore, if one mistakenly tried to infer dynamic effects from actual revenue levels for particular years, one could find data points that would suggest both that tax cuts cost *more* than expected as well as other data points that would suggest that tax cuts cost *less* than expected. In fact, on average, positive revenue surprises were larger following the tax increases in 1990 and 1993 than following the tax cuts in 1981 and 2001.²³

For example, the Congressional Research Service looked at the revenue levels in the first several years after enactment of the 2001 and 2003 cuts (i.e., through 2004), "Actual tax receipts fell significantly more than predicted by the ex ante scores, even after controlling for economic

²⁰ Technically this is the "root mean squared error," a standard measure of average forecasting errors.

²¹ CBO compiled a list of revenue forecasting errors going back to January 1981. These errors are "economic and technical" errors, subtracting out subsequent changes in tax legislation that CBO makes no effort to forecast. CBO's forecasts of revenues for the following fiscal year understated revenues in 11 of the forecasts and overestimated revenues in 12 of the forecasts.

²² JCT estimated that the capital gains and dividends tax cuts enacted in 2003 would cost \$23 billion in FY 2006. The Mankiw-Weinzierl model estimates that the positive macroeconomic effects of capital tax cuts offset 21 percent of the cost after five years, or less than \$5 billion in this case.

²³ Jason Furman, "Do Revenue Surprises Tell Us Much About the Cost of Tax Cuts," Center on Budget and Policy Priorities, July 18, 2006.

conditions. This suggests that the tax cuts may have resulted in *more revenue loss than predicted*,” (emphasis added).²⁴

The opposite was true of the 1993 tax increase. JCT originally estimated that the tax cut would raise \$60 billion in revenue in fiscal year 1997. Tax receipts then came in \$165 billion higher than originally forecast. No one would suggest that this tax increase generated so much additional work and saving that it ended up raising nearly three times as much revenue as originally projected; too many other factors were at play. But the same holds true for the current claims, based on only one or two years of data, that the Administration’s tax cuts are costing much less than had been forecast or are even paying for themselves.

Accurate estimates of the revenue effect of tax cuts or tax increases cannot simply be derived from actual revenue levels because those levels are affected by so many different factors. Instead, JCT and Treasury estimate the cost of tax cuts by using data on individuals to simulate how much different people would pay under different tax rates, after accounting for likely behavioral changes as discussed above. JCT estimates, for example, indicate that it expected the tax cuts to reduce fiscal year 2006 revenues by \$196 billion. Including information on actual revenue levels and reasonable dynamic scoring estimates might revise this number to indicate that the tax cuts reduced revenues by anywhere from about \$180 billion to \$200 billion.²⁵

Distributional Analysis of Tax Cuts Should Incorporate the Same Financing Assumptions as Dynamic Analysis

The Bush administration and other supporters of the recent tax cuts argue both that the tax cuts have increased efficiency and economic growth and that they are progressive. These claims rest on shifting and inconsistent modes of analysis.

The arguments that tax cuts improve efficiency generally are based on economic models that contain the assumption (which tax-cut proponents often fail to mention) that the tax cuts are paid for either by a lump-sum tax increase on all households or by cutting government benefit programs like Social Security and food stamps across-the-board. When analyzing the distributional impact of the tax cuts, however, tax-cut supporters typically drop these financing assumptions. If they maintained these assumptions, they would find the overall fiscal impact to be highly regressive, as taxes would be increased — or government benefits reduced — for low- and middle-income families while taxes for high-income families were being cut substantially.²⁶ (Even without taking

²⁴ Marc Labonte, “What Effects Have the Recent Tax Cuts Had on the Economy?” Congressional Research Service, updated April 14, 2006.

²⁵ These are rough estimates that range from about a 10 percent dynamic scoring benefit — double CBO’s most optimistic “textbook model” estimate and consistent with the Administration’s most optimistic long-run estimate — and a 2.5 percent dynamic-scoring cost, roughly the largest negative effect found in JCT short-run modeling.

²⁶ In most economic models, the driving source of macroeconomic gains is not so much the tax cuts themselves as the more regressive fiscal system (or, equivalently, the less redistributive fiscal system). Specifically, with financing of the tax cuts, the long-run models are essentially estimating the effects of the combination of tax cuts primarily for higher-income households and net tax increases (or transfer reductions) for households at lower income levels. Supporters of tax cuts essentially seek to make the tax-and-transfer system less progressive (or less redistributive) and believe this will reduce distortions and thus have long-run benefits for the economy. Even a fiscal system with less redistribution, however, is no guarantee of higher growth: as noted earlier, if a period of ten or twenty years of rapidly increasing debt

TABLE 2

Illustrative Effects of the 2001 and 2003 Tax Cuts in FY 2006 on Households at Different Income Levels, Assuming Financing and Dynamic Scoring Effects (Gains or Losses by Income Category*)

	Assuming Tax Cuts Are Not Paid For	Assuming Tax Cuts Are Paid For
Lowest Quintile	\$23	-\$1,220
Second Quintile	378	-865
Middle Quintile	748	-495
Fourth Quintile	1,215	-28
Top Quintile	5,406	4,163
All	1,554	311
<u>Addendum</u>		
Top 1 Percent	39,020	37,777
Top 0.1 Percent	200,523	199,280

*A positive change shows an increase in after-tax income

Source: The first data column is from Tax Policy Center T06-0034, February 7, 2006.

financing into account, the tax cuts still are regressive in the sense that they widen income disparities.²⁷⁾

For example, the Mankiw-Weinzierl model referred to above assumes that tax cuts are paid for by simultaneous increases in lump-sum taxes or reductions in government transfers like Social Security, Medicare, Medicaid and food stamps. The Administration appears to have made a similar assumption in its dynamic estimates of the effects of making the tax cuts permanent, although it has not released the details of its model. Applying this assumption to the tax cuts enacted since 2001 would result in a dramatically different distributional picture. The first column of Table 2 shows the distribution of the tax cuts assuming no financing (i.e., the conventional distributional estimates). The second column assumes the tax cuts are paid for (which they ultimately will have to be) and adopts the extremely rosy assumption that 20 percent of the tax cut will be offset by increases in economic growth (which is double the most optimistic estimate in the dynamic-scoring section of the Administration’s *Mid-Session Review*).²⁸ Under these assumptions, lump-sum taxes would need to be increased, or government benefits decreased, by \$1,243 per household to pay for the tax cuts. When this financing assumption is incorporated into the distributional estimates, the bottom 80 percent of taxpayers are seen to be net losers.

The Mankiw-Weinzierl assumption that the tax cuts are paid for contemporaneously is, of course, not an accurate description of the 2001 and 2003 tax cuts. But something like the results in Table 2 would obtain even if cuts in programs are instituted ten or twenty years from now to defray the costs of the tax cuts.

precedes the financing of the tax cuts, economic growth may suffer, compounding the problems that moderate-income families will face from the more regressive fiscal system.

²⁷ See, for example, Aviva Aron-Dine and Joel Friedman, “The Skewed Benefits of the Tax Cuts, 2007-16,” Center on Budget and Policy Priorities, March 15, 2006.

²⁸ This 20 percent is a weighted average of the portion of the tax cuts that are labor tax cuts (with the Mankiw-Weinzierl model’s assumed 15 percent offset), capital tax cuts (with the model’s assumed 33 percent offset), and lump sum tax cuts like the child tax credit (with no assumed offset).

TABLE 3

Illustrative Effects of the 2001 and 2003 Tax Cuts in FY 2006 on Households at Different Income Levels, Assuming Tax Cuts Add To National Income (Gains or Losses by Income Category)

	Pre-tax Income	Changes Due to Tax Cuts			Total Change	Change as % of After-Tax Income
		0.7 percent increase in national income	Tax Cut	Reduction in Transfers to Pay for Tax Cut		
Lowest Quintile	\$7,923	+\$55	+\$23	-\$1,243	-\$1,164	-15.3%
Second Quintile	20,116	+141	+381	-1,243	-722	-4.0%
Middle Quintile	35,940	+252	+753	-1,243	-238	-0.9%
Fourth Quintile	62,270	+436	+1,224	-1,243	416	0.7%
Top Quintile	189,863	+1,329	+5,444	-1,243	5,530	3.7%
All	62,970	+441	+1,565	-1,243	763	1.4%
<u>Addendum</u>						
Top 1 Percent	1,159,675	+8,118	+39,293	-1,243	46,168	5.6%
Top 0.1 Percent	5,274,153	+36,919	+201,927	-1,243	237,603	6.6%

Source: Calculations based on data from Tax Policy Center T06-0034, February 7, 2006.

(Note that Table 3 is purely illustrative, and the exact results would depend on the timing of the financing, as well as how the aggregate income gains were distributed across the income spectrum. The Administration could, if it chose, easily recalculate Table 3 using the precise financing and modeling assumptions that it used in the dynamic analysis of the tax cuts it presented in the *Mid-Session Review*. It is unlikely that such estimates would show that the tax cuts help, rather than hurt, moderate-income families over the long run.)

Finally, even if the Administration’s tax cuts result in somewhat higher economic output over the long term, the increases in economic growth almost certainly will not be enough to make up for the net losses that most Americans will face, once the effects of the measures adopted to pay for the tax cuts are taken into account. For the sake of illustration, Table 3 estimates the impact of making the President’s tax cuts permanent using the same financing assumption as Table 2, but also incorporating the Administration’s best-case scenario that the tax cuts ultimately will increase the size of the economy by 0.7 percent.²⁹ Even in this best-case scenario, the bottom 60 percent of households are made worse off.

Conclusion

Recent advances in modeling by CBO, JCT and academic researchers are now providing policymakers with a range of estimates that illustrate the potential macroeconomic consequences of different fiscal policies. This is a welcome development, as such analyses can yield useful, albeit tentative, insights into an important aspect of tax policy. Among the insights that such analyses have produced are that tax cuts do not come close to paying for themselves and can even cost *more* than conventional cost estimates indicate, once the economic harm from debt-financing of the tax cuts is taken into account. These analyses also can play a useful role in evaluating revenue-neutral

²⁹ For the sake of illustration, this long-run effect is applied to data for 2006. The last column — the percentage changes in income — would be similar if the table reflected incomes and tax cuts in the future.

tax reform, helping policymakers to better understand the economic implications of different types of tax cuts, including reductions in taxes on labor as distinguished from reductions in taxes on capital.

Further research on dynamic scoring would be useful, including the development of more complex models that can capture important elements left out of the current models, such as the complex interactions among various sectors of the economy. Models also should do more to incorporate a richer analysis of the economic effects of various types of government spending, including analysis of the extent to which increased government investments in areas like basic research or education may benefit the economy. Furthermore, much of the dynamic-scoring research is based on economic growth models that are as much as 50 years old; incorporating recent research, including more complex behavioral models of the economy, would be beneficial. Finally, dynamic scoring modelers should make a greater effort to present distributional data that are consistent with the assumptions that they use about how tax cuts would be financed.

But even with further advances in research it is unlikely that JCT or Treasury will be able to incorporate dynamic scoring into official cost estimates any time soon, if ever. Too much uncertainty remains about the correct economic model. In any event, the results that dynamic scoring produce are not very different from standard cost estimates.

Finally, it is impossible to do dynamic scoring of many of the recent tax policy proposals because the proposals are incomplete. The President's proposal to make the tax cuts permanent will further swell the deficit and debt if the costs are not ultimately paid for. Eventually, the costs will have to be offset. Not knowing how the tax cuts will ultimately be financed, however, makes it impossible to model the tax cuts' full economic effects. True dynamic scoring analysis of the tax cuts would have to include analysis of the effects of the policies adopted to finance the tax cuts. Indeed, the results produced by dynamic-scoring analysis of the recent tax cuts depend as much on the assumptions the dynamic scorers make about how and when the proposals will ultimately be paid for as on the tax-cut policies themselves.