



JOINT ECONOMIC COMMITTEE DEMOCRATS



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A REALITY CHECK ON “FAITH-BASED” REVENUE ESTIMATION

In its March analysis, the Congressional Budget Office (CBO) found that the President’s budgetary proposals for fiscal year 2004 would add \$2.7 trillion to the cumulative 2004-2013 budget deficit.¹ Equally important, CBO poured cold water on the arguments of those who believe that a different method of budget estimation known as “dynamic”—or, among its most ardent advocates, “reality-based”—scoring would produce substantially smaller estimates of the budgetary cost of those policies.

This paper discusses the lessons to be drawn from CBO’s dynamic analysis of the President’s budgetary proposals and applies those lessons to the ongoing debate over those proposals. CBO’s analysis covers the whole set of tax and spending proposals in the President’s budget and does not analyze the pieces separately. This paper focuses on the centerpiece of those proposals, the President’s “Jobs and Growth Initiative,” which is intended to stimulate the economy by accelerating the tax cuts passed in 2001 and by largely excluding corporate dividends from taxation in the individual income tax.

The analysis extends an earlier JEC Democratic staff study comparing the President’s proposal to an alternative Democratic stimulus package like the ones proposed by the House and Senate Democratic leaders.² The key conclusions of that study were the following:

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- Most of the impact of the President’s plan occurred after the economy was already back to full employment.
- The fiscal stimulus from the President’s plan in those years was more likely to put upward pressure on interest rates than it was to boost jobs and growth.

This study adds another conclusion:

- Any realistic positive dynamic effects on revenue are likely to be larger in the Democratic plan, because that plan boosts growth more in the short term without damaging growth in the long term.

Lessons for the Dynamic Scoring Debate

It is an article of faith among some tax-cut advocates that traditional methods of revenue estimation greatly overstate the budgetary cost of tax cuts, because those methods do not try to account for feedback effects on revenue from

changes in the economy induced by the tax cuts. In this view, incorporating macroeconomic effects into the revenue estimation process would show much smaller budgetary impacts than the allegedly “static” methods currently used.

CBO’s analysis provides not only a reality check on that view, but also strong support for the views of critics of dynamic scoring, who believe that it is neither feasible nor desirable to incorporate dynamic analysis into the normal revenue estimating process.³ The JEC Democratic staff draws the following lessons from the CBO analysis:

- *There is no uniquely appropriate model or framework for conducting dynamic analysis.* CBO used a variety of models that are representative of the range of tools available to economists to identify and estimate effects on macroeconomic performance and revenue. However, each of those models was acknowledged to have limitations that prevented it from capturing the full range of likely effects.
- *There is considerable disagreement and uncertainty about many of the key economic effects and policy assumptions that must be incorporated into this kind of analysis.* CBO had to make a number of judgments about key economic and policy variables. In some cases, the agency reported results based on alternative assumptions that bracketed the range of plausible values; in others, they split the difference between conflicting plausible assumptions, and in still others they made their best judgment based on the available evidence. These strategies are understandable, but they fail to reflect the full range of uncertainty about critical assumptions that affect not just the magnitude, but even the direction of the effect.
- *Dynamic analysis is as likely to add to the estimated revenue loss from a tax cut as it is to lower it.* To the extent that tax cuts increase incentives to work, save, and invest, they increase output and revenue. But to the extent that they encourage private consumption at the expense of investment and reduce national saving by making the budget deficit larger, they *hurt* growth and revenues. CBO reports both positive and negative net outcomes, with the result depending “not only on how the private sector would respond to the proposals themselves, but also on how the proposals would influence what budgetary policies people might expect in the future.”⁴
- *Dynamic analysis is unlikely to produce revenue estimates that are substantially different from those produced using current methods of revenue scoring.* Irrespective of whether they are positive or negative, the supply-side effects of tax cuts will most likely be too small to change standard revenue estimates much. CBO concludes that the net effect on economic output of the whole set of policies in the President’s budget “would probably be small.”⁵ As a result, the change in the estimated budgetary impact of the President’s policies “is unlikely to be dramatic.”⁶ In congressional testimony, CBO Director Douglas Holtz-Eakin said, “In our view, on balance, the conventional estimate is a very good indicator of the budgetary outlook even after including the macroeconomic effects.”⁷
- *Tax cuts (and spending increases) can also have demand-side (business-cycle) effects in the near term, but those are temporary.* When the economy is in a slump, with excess unemployment, tax cuts or spending increases can provide stimulus that restores full employment more quickly. The resulting temporary spurt of growth will also boost revenues (though not by enough to offset fully the budgetary costs of the stimulus). However, once the economy is

back to full employment, further fiscal stimulus is likely to be counteracted by a tightening of monetary policy, which raises interest rates, reduces investment, and hurts growth and revenues in the long run. CBO provides a separate analysis of such demand side effects, and clearly distinguishes those from the supply-side effects that are more typically stressed by advocates of dynamic scoring.

Applying the Lessons – the Limits of Demand-Side Models

Among the models CBO used in its analysis were two macroeconomic forecasting models, the Macroeconomic Advisers (MA) and Global Insight (GI) models. The JEC Democratic staff also used two such models, including the MA model, to analyze the first-year effects of the Bush and Democratic stimulus proposals. However, we expressed a number of concerns about whether those models were appropriate for analyzing the longer-term effects of those proposals.

CBO’s analysis echoes those concerns. The agency points out that macroeconomic forecasting models are designed to estimate demand-side effects, not supply-side effects, and that estimates of demand-side effects become increasingly unreliable over longer periods of time. As a result, CBO reports results from the macroeconomic forecasting models for only five years; it relies on other models to estimate longer-term supply-side effects. Like the JEC Democratic staff study, CBO concludes that the demand-side effects of budgetary policy depend on how the Federal Reserve responds to that policy. In a recession, an expansionary fiscal policy (tax cuts or spending increases) probably would stimulate aggregate demand, because the Fed would be unlikely to raise interest rates to offset that stimulus. But, in a strong economy, the Fed would most likely raise interest rates rather than accommodate fiscal stimulus.

The earlier analysis by the JEC Democratic staff suggested that even five years might be too long a time horizon for identifying demand-side effects reliably. For example, the analysis of the President’s plan by his own Council of Economic Advisers (CEA) assumes that GDP would be raised a full percentage point above its baseline level by 2007, even though that baseline assumes the economy is back to full employment by then. It seems more likely, however, that the Fed would raise interest rates enough to keep aggregate demand from rising above the full employment baseline level. In that case, the net effect of continued fiscal stimulus would be to crowd out private investment and increase inflows of foreign capital (borrowing from abroad) that would have to be repaid out of future income.

This discussion illustrates why the earlier JEC Democratic staff study used macroeconomic models to compare the first-year demand stimulus of the President’s “Jobs and Growth Initiative” with a Democratic alternative but did not try to push those models beyond their limits to analyze longer-term supply-side effects. This is consistent with the first lesson to be drawn from CBO’s analysis: different models have different strengths and weaknesses, and no one model can produce a reliable dynamic analysis. It also illustrates the lesson that demand-side effects, which are temporary, should be distinguished from longer-term supply-side effects in evaluating the impact of tax cuts on growth and revenue. In light of these lessons, any dynamic analysis that relied exclusively on a demand-oriented macroeconomic forecasting model for effects beyond the first year or so is particularly ill-conceived.

For example, the Heritage Foundation has published a multi-year dynamic score of the President’s tax proposals based on the Global Insights (GI) model. The results are driven by implausible intermediate-run macroeconomic outcomes. In particular, Heritage assumes that the unemployment rate can be pushed below its baseline high-employment level and held there for the rest of the 10-year forecast

window. In addition, foreign borrowing grows substantially each year. But, it is more likely that interest rates will rise and investment will be discouraged if the Federal Reserve becomes concerned that excessive demand stimulus will generate inflation and if foreign lenders become more cautious in the face of a mounting current account deficit.

The GI model used by Heritage also appears to be much more “friendly” to dynamic scoring than other models, including the MA model. For example, using the GI model, CBO estimates that dynamic effects reduce the budgetary impact of the President’s proposals by \$231 billion in 2004-2008, largely because of temporary positive demand-side effects. In contrast, using the MA model, CBO estimates that dynamic effects *add* \$75 billion to those deficits. The President’s Council of Economic Advisers finds positive short-run dynamic effects in the MA model, but, as already discussed, that analysis too assumes that output and jobs can be pushed beyond full employment levels without any response from the Fed.

Applying the Lessons – the Limits of Supply-Side Models

For its 10-year analysis of supply-side effects, CBO used three models. The first, which it calls the “textbook growth model,” is an expanded version of the very simple “Solow growth model” used in the earlier JEC Democratic staff study. However, that model is not forward-looking and assumes that people do not base current decisions on expectations about future policies. To incorporate expectations about future policies, CBO used two other models that are more sophisticated theoretically, but which make very strong assumptions about the extent to which people are fully rational and forward-looking in their economic behavior.

The use of sophisticated forward-looking models gives economists some insights into how supply-side effects come about and how sensitive they are to different assumptions about how people factor

likely future policy actions into their economic decisions. But those insights come at a heavy price. The models are arcane and based on extreme assumptions about the rationality of economic decision-making. Moreover, the results derived from those models are difficult to describe and sometimes counterintuitive. For example, the most powerful positive supply-side effects arise in a model in which people are assumed to live forever (or regard the welfare of even their distant descendants to be as important as their own) and believe that deficits today will be financed by tax increases (or reductions in valuable spending) in the future. In contrast, if people think that the tax cuts will eventually be financed by eliminating wasteful government spending, the effect is reduced growth and revenue in the meantime.

CBO’s analysis of supply-side effects illustrates several of the lessons discussed above. First, several models are used, because no one model is fully satisfactory. Second, multiple results are reported for some models, based on different assumptions about a few important economic variables and future policy choices. However, the number of variants would have to be multiplied several times over to capture the full range of uncertainty about key economic variables and policy assumptions.

Third, there is no clear direction to the results. In four of the seven cases analyzed for the 2009-13 period, growth is *weaker* and the deficit *larger* when the macroeconomic feedback effects of the President’s policies are included; in the other three cases, those effects are positive. Fourth, the size of the effects, whether positive or negative, is not large enough to change the fundamental conclusion of the traditional revenue estimates, which is that adopting the President’s policies would cause a significant deterioration in the budget balance. According to CBO, the estimated cumulative deficit from 2004 to 2008 varies between \$1,242 billion and \$1,042 billion when supply-side effects are included, compared with an estimated \$1,164 billion under baseline assumptions. The estimated cumulative deficit from 2009 to 2013 varies

between \$942 billion and \$335 billion when supply-side effects are included, compared with an estimated \$656 billion under baseline assumptions. However, the lowest estimate comes from the most unrealistic model. And CBO does not report results beyond 2013, when some of the most negative effects occur in some models.

Finally, the models used to analyze supply-side results have nothing to say about any possible demand-side effects. However, as discussed earlier, the macroeconomic forecasting models that are better suited to providing year-by-year budgetary estimates are unreliable over the full budget horizon and are ill-suited to estimating supply-side effects.

Dynamic Effects in Competing Stimulus Packages

CBO’s analysis demonstrates quite decisively that dynamic scoring is not a practical tool for revenue estimation. Nevertheless, appeals to dynamic analysis are likely to arise in the debate over the President’s tax proposals in coming weeks. CBO’s analysis provides a useful framework for separating plausible from implausible claims.

The following discussion compares two proposals: the President’s original “Jobs and Growth Initiative” and a Democratic alternative. The President’s proposal consisted mainly of tax cuts estimated to cost a total of \$726 billion over the 2003-13 period.⁸ The Democratic alternative, estimated to cost \$110 billion over the same period, included both tax cuts and increased spending on unemployment insurance and relief to cash-starved state and local governments. Neither of these cost estimates includes dynamic feedback effects. Nor do they include the debt-service costs that would be incurred if the proposals were not paid for with other tax increases or spending cuts.

Demand-Side Effects

In today’s economy, either of these proposals would have short-term demand-side effects, because the

economy is currently in a slump, with excess unemployment and idle industrial capacity. However, as shown in the earlier JEC Democratic staff analysis, in the first year the Democratic alternative provides up to twice the boost to jobs and growth as the President’s plan (See **Charts 1 and 2**). That extra short-term growth translates into a larger short-term demand-side revenue increase in the Democratic alternative. According to rough estimates by the JEC Democratic staff, the demand-side effect from hastening the economy’s return to full employment would be \$53 billion with the Democratic plan and \$46 billion with the President’s plan.⁹ Those effects would offset nearly half the cost of the Democratic proposal (as traditionally measured) but only about 6 percent of the cost of the President’s plan.

As discussed earlier, the Federal Reserve is likely to raise interest rates if fiscal stimulus continues after excess unemployment and idle capacity have been eliminated. This consideration is unimportant for the Democratic proposal, which concentrates its effect in the first year when it is needed the most and does not entail subsequent costs (other than debt service). In contrast, the President’s proposal continues to stimulate aggregate demand long after excess unemployment and idle capacity have been eliminated. If the Fed tightens monetary policy in response, the resulting increase in interest rates would add to the cost of financing debt and hence to net interest outlays and the deficit.

The JEC Democratic staff has not made an estimate of those effects. Such an estimate would vary with specific assumptions about private saving behavior, international capital flows, expectations about future policy, and the vigor of the Fed’s response. As a rough rule of thumb, each 10 basis-point increase (0.1 percentage point) in interest rates would represent \$4 billion per year of extra interest costs on a public debt of \$4 trillion.

Supply-Side Effects

Chart 1

Bush Plan Produces Fewer Jobs and Less Growth in the First Year

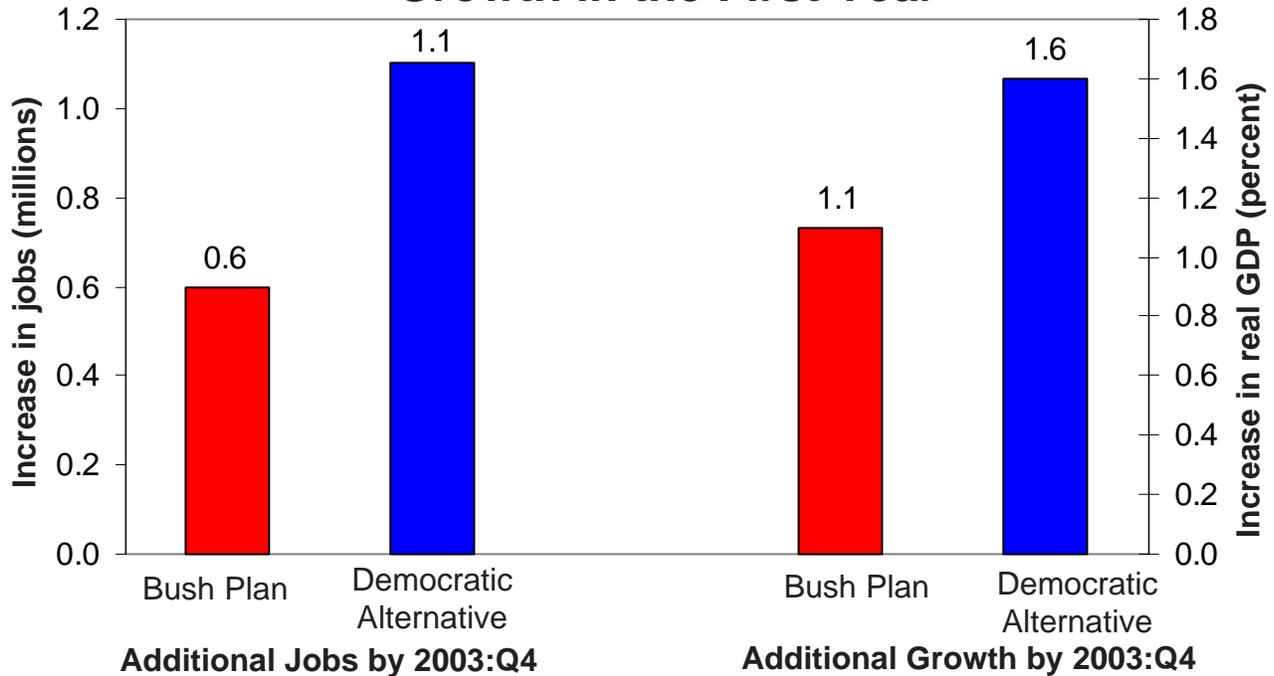
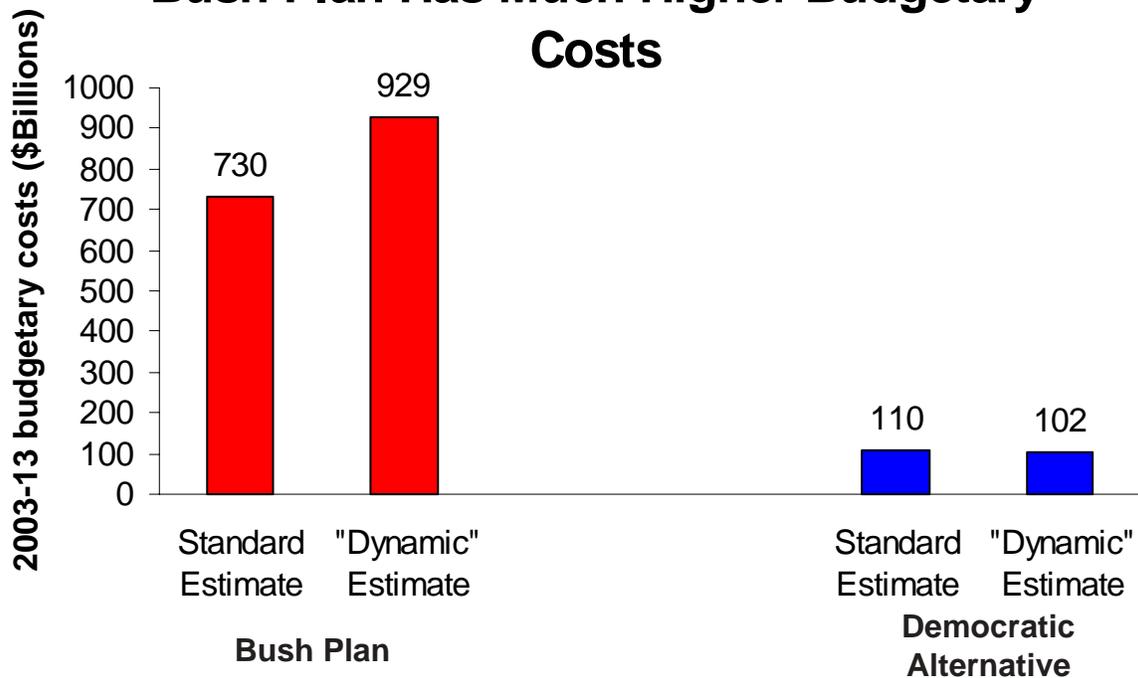


Chart 2

Bush Plan Has Much Higher Budgetary Costs



In the long run, tax cuts have a positive effect on growth and revenues when they encourage greater work effort, saving, and investment. They have a negative effect when they discourage those activities. As the CBO analysis shows, however, the magnitude of these effects is difficult to estimate empirically and the net effect could be positive or negative. To be credible, a supply-side dynamic analysis should be clear about the models and assumptions used to reach any conclusions about how a tax cut would affect the economy and the budget.

The JEC Democratic staff comparison of the President's "Jobs and Growth Initiative" and the Democratic alternative used a model related to what CBO calls the "textbook growth model." We judged that neither policy would have much direct effect on labor supply, saving, or investment through changes in marginal tax rates. CBO, in contrast, includes a net positive labor supply effect

from reductions in marginal tax rates. The dominant effect in both analyses, however, is the negative impact of higher public debt on saving and capital formation. CBO's assumptions about private saving behavior and international capital flows result in a smaller "crowding out" of investment *per dollar* of debt. However, CBO got a larger negative impact because it estimated the impact of the full set of proposals in the President's budget, not just the "Jobs and Growth Initiative."

Table 1 shows the JEC Democratic staff estimate of the increase in public debt from 2003 to 2013 associated with the President's and Democratic plans, respectively. The first line shows the standard budgetary impact as estimated by conventional methods. In this accounting, the President's plan is nearly seven times more expensive than the Democratic alternative. Line 2 shows the demand-side effect discussed above. Line 3 shows the net budgetary impact of these two

Table 1

Impact of Economic Proposals on Public Debt in 2013 (billions of dollars)

	Bush Jobs and Growth	Democratic Alternative	Ratio of Bush to Alternative
Conventional budgetary effect	726	110	6.6
<i>Plus:</i> Feedback from Short-term demand	-46	-53	0.9
<i>Equals:</i> Net Revenue effect	680	58	11.7
<i>Plus:</i> Debt service costs	249	44	5.7
<i>Equals:</i> Increase in Debt	929	102	9.1

Source: Joint Economic Committee Democratic staff calculations. See "Policies To Restore Full Employment and Promote Long-Term Growth: Comparing the President's Jobs and Growth Initiative with the Democratic Alternative." Joint Economic Committee Democrats, March 2003. Bush Jobs and Growth Initiative includes only tax proposals as estimated by Joint Committee on Taxation.

effects. Line 4 shows the extra debt service costs that are incurred because the proposals are financed by debt rather than other tax increases or spending cuts. Line 5 shows the total increase in debt, including interest costs. That accumulation of debt drains national saving and hurts growth in the long run. The Democratic plan, which provides a substantially larger boost to jobs and growth in the first year, also has just one-ninth the budget cost of the President’s plan. Thus, the drain on national saving is nine times larger in the President’s plan.

This increase in debt is the largest source of supply-side expense associated with the two plans. As described in the earlier JEC Democratic staff study, the drain on national saving from the debt generated by the President’s plan would reduce U.S. national income in 2013 by an estimated 0.4 to 0.6 percent. The costs associated with the Democratic plan are one-ninth as large and would have a correspondingly smaller effect.

The largest positive dynamic effects in this analysis come from stimulating demand in a weak economy. However, those effects are temporary and offset only a fraction of the direct budgetary costs of the stimulus policy. That fraction is larger in the Democratic alternative because there are no significant costs beyond the first year other than debt service. The President’s permanent debt-financed program has a smaller stimulative effect in the short run and leads to higher interest rates and a crowding out of investment in the longer run. For those permanent tax cuts to have a net positive impact on growth in the long run, they must generate positive supply-side incentive effects large enough to offset the drag on long-term growth from the reduction in national saving they produce. The available evidence suggests that debt-financed tax cuts will not meet this test.

Conclusion and Implications

CBO’s analysis of the potential macroeconomic effects of the President’s budgetary proposals helps

clarify some important issues in the dynamic scoring debate. It identifies the main channels through which potential macroeconomic effects are likely to occur and it illustrates many of the difficulties that must be overcome to produce a credible dynamic analysis. It shows that macroeconomic models are useful for identifying short-term demand-side effects that might occur in an economy experiencing economic slack, but that those models are unreliable guides to longer-term supply-side effects. Finally, it shows that true supply-side effects are likely to be relatively small in magnitude and uncertain in direction. Revenue-neutral tax cuts that increase incentives to work, save, and invest may have small positive effects, but debt-financed tax changes probably have net negative effects.

This paper has applied the lessons to be drawn from CBO’s analysis to a comparison of the President’s “Jobs and Growth Initiative” and an alternative Democratic plan. Based on standard budget scoring methods, the President’s plan is nearly seven times as expensive as the Democratic alternative, yet it provides less stimulus to jobs and growth in the first year, when such stimulus is most needed and most likely to be effective. While the President’s plan may provide some positive incentives to work, save, and invest, those effects, if present, are unlikely to be large enough to offset the negative impact of the greater debt needed to finance those tax cuts.

Far from lowering the measured costs of the President’s plan, a dynamic analysis would most likely increase those costs. In particular, the extra debt service costs are much larger than the short-run demand-side effects on revenue. An earlier JEC Democratic staff analysis showed that the Democratic alternative delivered roughly twice the boost to jobs and growth in the first year as the President’s plan. The analysis in this paper shows that with “dynamic” effects included, it does so at one-ninth the cost.

Endnotes:

¹ *An Analysis of the President’s Budgetary Proposals for Fiscal Year 2004*, March 2003

² “Policies To Restore Full Employment and Promote Long-Term Growth: Comparing the President’s Jobs and Growth Initiative with the Democratic Alternative,” Joint Economic Committee Democrats, March 2003.

³ CBO’s analysis of the President’s budgetary proposals includes both spending and revenue proposals. In principle, the inclusion of spending might obscure the dynamic effects of tax cuts, and, at first blush, the proposals seem to be about evenly divided between taxes and spending. However, excluding net interest outlays, the proposals are two-thirds tax cuts and one-third spending increases. Therefore, about two-thirds of the net interest outlays arise from the tax cuts and should be treated as a component of the tax cuts in evaluating dynamic effects. Tax cuts dominate the President’s proposals, and most of the lessons to be drawn from CBO’s analysis of those proposals apply to the analysis of tax cuts more generally.

⁴ CBO (2003), p. 16

⁵ *ibid.*

⁶ *ibid.*, p. 17

⁷ House Budget Committee Hearing, March 25, 2003.

⁸ The Budget Resolution reduced the amount of the President’s tax cut that would be protected by reconciliation to \$550 billion, and an informal agreement by Senator Grassley reduced it further to \$350 billion. To the extent that changes to the President’s original proposal reduce its impact in the first year, there will be less positive job-creating stimulus; to the extent that changes reduce the outyear costs, there will be less harm to long-term growth from budget deficits and reduced national saving.

⁹ These estimates assume that full employment is restored more quickly than in the baseline but that output and employment are not pushed beyond their high-employment baseline levels for an extended period of time (see the Technical Appendix, which is available separately).