

CBO REPORT

Supplement to CBO's May 9, 2002, Testimony on Federal Budget Estimating

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CBO's Response to Concerns Raised in Testimonies

Madam Chairman, I appreciate your giving me the opportunity to respond to the other testimonies presented before the Committee. Before I make specific comments, let me first describe the areas where I think there is broad agreement among experts.

First, tax policy can have significant effects on the economy, and lower marginal tax rates can encourage work and saving, raise productivity, and boost economic growth. As I have emphasized before many Congressional committees, the health of the economy is critical for addressing the long-term challenges posed by an aging population. Policies that boost economic growth will make it easier for the nation to address those challenges.

Second, information about the macroeconomic effects of changes in tax policy should be available to policymakers. Over the years, the Congressional Budget Office (CBO) has published macroeconomic evaluations of a large number of significant policy proposals, from an analysis of the Clinton Administration's health proposal in 1994 to an evaluation of the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA).

Third, information about the models that CBO and the Joint Committee on Taxation (JCT) use to estimate the economic effects of tax policy should be available to the public and outside experts for review and evaluation. For that reason, CBO has published descriptions of its models, and the agency regularly reviews those models with its Panel of Economic Advisers—a group of nationally recognized experts in the field of economics from the private sector and academia.¹

However, people disagree about the way in which information concerning the macroeconomic effects of a tax policy proposal can be presented to the Congress. My view, as well as that of Glenn Hubbard, Lindy Paull, and most other economists, is that the macroeconomic effects of a change in tax policy cannot be summarized in a single number and inserted in a cost estimate. The uncertainty inherent in that kind of “dynamic score” is not like that of a forecast, for which we have a straightforward history of information that allows us to determine accuracy. A tax cut cannot be financed by issuing more debt forever; trying to do so would lead to an explosion of debt. At some point, spending would have to be cut or taxes raised. Thus, any dynamic score would be not only very uncertain but also inherently ambiguous—and the answer would depend on how the tax cut was to be financed. If the tax cut displaced government spending, gross domestic product (GDP) would probably go up; if it led to higher tax rates in the future, GDP would probably go down. Because of the fundamental ambiguity about future policy and the uncertainty about a number of critical parameters, choosing one course for future policy—and a single set of parameters—would be difficult to defend and would undermine CBO's credibility.

1. A list of members on CBO's Panel of Economic Advisers and descriptions of CBO's models are available at its Web site, www.cbo.gov.

The current method of estimating bills does not impart significant bias to CBO's baseline estimates of the budget, nor is it responsible for inaccuracies in CBO's baseline projections.

Finally, I share the views of many people, including Dr. Hubbard and Ms. Paull, that macroeconomic analysis can—and should—be provided as a supplement to revenue estimates. In that format, CBO would be able to convey the range of uncertainty about the estimates, illustrate the impact of changing key assumptions, and provide economic information to the Congress in a useful and responsible way.

CBO's Projections of the Budget Surplus or Deficit

CBO publishes statistics on the accuracy of its budget projections on a regular basis. Some of the testimonies presented to the Committee cited CBO's projection errors, but some of the facts in those testimonies were misstated.

For example, one testimony says that nearly three-quarters of the discrepancy between CBO's forecast for 2001 (published in the January 2001 *Budget and Economic Outlook*) and what actually occurred was a result of CBO's miscalculations of economic growth and technical factors. CBO's current-policy baseline projected a surplus for 2001 of \$281 billion; the surplus actually turned out to be \$127 billion. In fact, about half of that discrepancy stemmed from legislation passed after CBO's baseline was prepared. (CBO's baseline projections assume no changes in policy.) Errors in estimating economic growth accounted for about one-sixth of the discrepancy, and technical errors accounted for less than one-third.

Another testimony cites a long record of discrepancies between CBO's projections and actual outcomes, but it misstates that record and uses inappropriate measures of error. We cannot replicate some of the witness's calculations; specifically, the calculations for 1996, 1997, 1998, and 1999. In addition, the testimony expresses discrepancies in projections of the budget balance as percentages of either the surplus or the deficit.² However, measuring using such percentages magnifies errors when the surplus or deficit is small. By that measure, a \$10 billion error in projecting a \$50 billion surplus is the same as a \$50 billion error in projecting a \$250 billion surplus. Moreover, the measure does not recognize that errors in projections are likely to grow with the size of government; it considers a \$10 billion error in projecting a \$50 billion surplus to be equally egregious whether total spending is \$500 billion or \$2 trillion.

CBO routinely examines its projections to see if their accuracy can be improved. Those projections would not have been altered by a change in bill scoring.

2. The testimony also calculates the measures inconsistently, sometimes dividing by actual figures and sometimes by projected ones.

One witness's citation of CBO's forecasting record would have been better illuminated had he considered the sources of CBO's past errors in projections. For example, in 1990, 1991, 1992, and 1993, a large part of CBO's errors stemmed from technical revisions to CBO's estimates of the cost of deposit insurance related to the aftermath of the widespread failure of savings and loan institutions.

In its January 2002 *Budget and Economic Outlook*, CBO presents an appropriate way to examine errors in estimating the surplus or deficit—by expressing the errors as percentages of GDP. That measure captures the fact that a \$50 billion error in projecting the surplus or deficit is much more costly when the economy is \$1 trillion than when it is \$10 trillion and does not penalize errors differently when the budget is close to or far from balance.

By that measure, CBO's record of projecting the surplus or deficit has been reasonably accurate. According to the data, the absolute difference (without regard to whether the difference was positive or negative) between CBO's estimate of the federal surplus or deficit and the actual result was 0.5 percent of GDP for the ongoing fiscal year, 1.1 percent for the budget year, and 3.2 percent for the fourth year beyond the budget year, adjusted for the effects of subsequent legislation.

CBO's Economic Projections

Some of the witnesses criticized CBO's short-term and long-term economic forecasts and suggested that the Congress would be better off using compilations of private forecasts, such as those published by the *Blue Chip* or in the *Wall Street Journal*.

CBO's record of short-term economic forecasts has been respectable. For all of CBO's two-year forecasts of real GDP, its annual error was -0.7 percent, on average, and its annual absolute error was 1.0 percent. CBO's annual analysis of its economic forecasting record shows that its forecasts are at least as accurate as those of private forecasters.

Some people have suggested that CBO's economic projection for the next 10 years is too conservative because it is below growth rates achieved both recently and over the whole postwar period. CBO's projection takes into account more than simple historical trends, however. It incorporates the fact that growth in the number of young people entering the labor force is lower for demographic reasons. Over the 1951-2001 period, the potential labor force grew at a rate of 1.6 percent, but that rate is likely to slow to 1.1 percent over the next 10 years—a decline of one-half of one percentage point. (CBO's projections of growth in the labor force are slightly higher than those of the Social Security Administration.) Some of that slowdown in the growth of the labor force will be offset by faster productivity growth—CBO expects potential labor force productivity to advance at a 2 percent rate over the next decade, in comparison to the 1.8 percent rate over the 1951-2001 period. But even with that faster productivity growth, economic growth is projected to slow modestly.

CBO's short- and long-term economic forecasts could not be easily replaced by forecasts compiled for private forecasters and published by the *Blue Chip* or in the *Wall Street Journal*, for several reasons:

- Private forecasters rarely attempt anything near 10-year forecasts.
- Because the *Blue Chip* consensus forecasts are averages from about 50 different forecasters, they are usually internally inconsistent.
- The *Blue Chip*'s long-term forecasts are months out of date when CBO is required to prepare its semiannual forecasts, and neither the *Blue Chip* nor the *Wall Street Journal* produces forecasts for the budget year in time for CBO to prepare its January budget projections.
- Forecasts from the *Blue Chip* and the *Wall Street Journal* do not include many variables that are critical to forecasting revenues and spending. Those variables include the shares of income that are allocated into wages, profits, interest, dividends, capital consumption, and health and retirement benefits. Those income categories are important for the budget because they are taxed at different rates or not taxed at all. Basing projection of the budget on the *Blue Chip* forecasts for GDP and assuming that those shares do not change could produce huge errors. Between 1995 and 2000, the share of income in categories that was taxed at relatively high rates increased significantly, which boosted revenues.
- Relying on private firms to prepare the key assumptions behind the budget baseline could create conflicts of interest. Those firms might have clients or would be able to attract clients that could benefit from baseline projections that showed stronger economic growth and larger budget surpluses.

Moreover, as one witness commented, rolling a Yahtzee die to determine economic growth would not produce better results. It is not surprising that rolling a die produced an average of 3.43 percent; if the die is fair, it will eventually produce a value of 3.5 on average, representing only the average over many years. However, the witness may have meant to raise a substantive point: would it be better to assume that the economy will always grow at 3.5 percent? The answer is no. Not only would such a projection miss the effects of the business cycle on the economy, but it also would fail to capture demographic developments, like the slowdown in the growth of the labor force. Moreover, an analysis of published forecasts indicates that CBO's economic forecasts do significantly better than forecasts developed using simple rules of thumb.³

3. See Stephen K. McNees, "An Assessment of the 'Official' Economic Forecasts," *New England Economic Review* (July/August 1995).

Capital Gains

The testimonies before your Committee showed some misconceptions about current procedures for estimating the effects of taxes on capital gains.

Contrary to what some people have claimed, the Joint Committee on Taxation currently includes changes in realizations in its estimates when it scores a bill that would cut the capital gains tax; CBO correspondingly adjusts its baseline projections once the bill is enacted. Thus, dynamic scoring would not affect the agencies' procedures for estimating the level of realizations. Furthermore, when the JCT scores a capital gains proposal, it is not estimating the level of realizations in future years; it is merely estimating how the legislation, by itself, might affect realizations.

Analyzing the history of capital gains realizations is complicated. Although, as one witness said, capital gains realizations in 1986 were about four times above realizations in 1981, nearly half of that increase occurred in 1986 and was not attributable to the 1981 tax cuts. Instead, investors realized gains in 1986 to avoid the rise in taxes on gains that the 1986 Tax Reform Act imposed in 1987. The rush to realize gains in 1986 led to a big drop in realizations in 1987, which CBO predicted. However, despite the higher tax rates, in 1988 realizations climbed close to their average level in 1984 and 1985, before the Tax Reform Act was passed. Realizations fell sharply in 1991, but that decline largely resulted from the recession and the drop in real estate values.

Many factors, besides taxes, can affect people's decisions to realize capital gains. Statistical analyses that account for those factors as well as tax changes tend to show that past capital gains tax reductions have lowered revenue, holding other things equal, although the results are not definitive.⁴ Those analyses find that tax reductions clearly increase realizations, but not necessarily by enough to offset the effect of lower tax rates.

With regard to the economic effects of changes in capital gains taxes, it is important to remember that other taxes are far more important than the capital gains tax for a firm's overall cost of capital. One witness suggested that a 5 percent reduction in the capital gains tax would result in a 7.5 percent reduction in the cost of capital. However, research by Jane Gravelle indicated that a 30 percent reduction in the tax rate on capital gains would reduce the cost of capital in 1990 by less than 1 percent.⁵

Simulation studies of capital gains tax changes can also be misleading. Although Allen Sinai found that the 1997 cut in the capital gains tax rate would have a significant effect on GDP,

4. Preston Miller and Larry Ozanne, "Forecasting Capital Gains Realizations," CBO Technical Paper 2000-5 (August 2000), p. 15, available at www.cbo.gov/tech.cfm; Gerald Auten and David Joulfaian, "How Income Taxes Affect Capital Gains Realizations," Mimeo, Office of Tax Analysis, U.S. Department of the Treasury (July 1999); and Leonard Burman, *The Labyrinth of Capital Gains Tax Policy* (Washington, D.C.: Brookings Institution Press, 1999), pp. 58-64.

5. Jane G. Gravelle, *Can a Capital Gains Tax Cut Pay for Itself?* CRS Report for Congress 90-161 (Congressional Research Service, March 1990), pp. 21-22.

those results were not driven principally by supply-side considerations (that is, by the incentive effects of lower taxes); instead, they were generated by the model's Keynesian assumptions.⁶ In my testimony, I argued that including such assumptions in a dynamic estimate should be viewed skeptically, especially when the economy is operating at full capacity, as it was in the late 1990s. In that environment, a Keynesian demand stimulus should have little effect on real economic growth.

Changes in Top Marginal Rates

One testimony cites several examples of economic growth following significant reductions in the top marginal tax rates. Although economic growth can pick up as a result of cuts in top marginal rates, the calculations that were presented contain some errors.

The testimony suggests that President Kennedy's tax cut produced a jump in revenues for the next seven years. However, the years cited show a distorted picture because they include the revenue increases that came with the large tax surcharge of 1968. The testimony also claims that the cut in top rates in the 1980s caused tax receipts and the size of the economy to double in that decade. They did double in nominal terms (including the effect of inflation and the size of the economy), but by that standard, they rose even more in the 1970s. Real GDP, a more relevant measure, grew by almost exactly the same amount—37 percent—in the 1980s as it did in the 1970s. Moreover, some of the rise in overall revenues reflected an increase in payroll tax rates in 1983. Individual income tax receipts, the component of taxes that should have been affected by the decline in the top tax rate, actually grew more slowly than GDP grew over that period. The testimony also claims that the 1993 tax increases brought in one-third less revenue than the JCT predicted and depressed real income by \$25 billion. That claim is hard to reconcile with the fact that individual income tax revenues after 1993 grew much faster than did GDP—and faster than could be accounted for by real bracket creep.

The historical evidence about the effects of marginal tax rates on GDP is mixed because the effects of rate changes can rarely be neatly separated from other events. For example, when top marginal rates increased from 81 percent in 1940 to 94 percent in 1944, the tax share of GDP went from 6.8 percent to 20.9 percent, and estimates of real GDP went up by more than 50 percent in four years. Does that fact prove that raising marginal rates by almost 15 percentage points will increase the size of the economy by one-half in four years? Of course not. Those top marginal rates were certainly a drag on the economy and would be "over the top" of the Laffer Curve for anyone who paid that rate. But many other factors also accounted for fast growth in the 1940s, most notably the economy's emergence from the Great Depression as the nation tooled up to fight World War II. Nonetheless, that example points out the dangers of selectively reading history.

6. Statement of Allen Sinai, Chief Global Economist, Primark Decision Economics, Inc., and The WEFA Group, "Capital Gains Tax Reduction and the Economy," before the Senate Finance Committee, March 13, 1997.

The real relationship of taxes to growth can be ascertained only by carefully controlling for other factors that may influence the economy. CBO has reviewed statistical work carried out by numerous independent researchers and concluded that reductions in marginal tax rates can increase labor supply.⁷ CBO has also developed sophisticated supply-side models that show that marginal tax cuts can significantly increase the capital stock, productivity, and growth. But those effects depend critically on how the tax cuts are financed. Moreover, the fundamental parameters in the model are estimated imprecisely, and alternative models can produce different results.

As noted earlier, simulations of tax changes can be misleading. Some models include Keynesian effects, which should be temporary. For example, the macroeconomic model that the Heritage Center for Data Analysis uses (the WEFA model) has a large Keynesian response to cuts in tax rates.⁸ But the Keynesian response in that model is not as temporary as most theory suggests it should be: the model lacks a significant self-correcting mechanism to limit the duration of periods of excess or deficient demand.

Luxury Tax

Testimony presented to the Committee argues that in scoring the 1990 luxury tax, the JCT failed to take account of the dynamic effects on economic behavior and consequently overpredicted the collections from the tax on boats. In fact, the JCT did anticipate that the tax would reduce boat sales, as well as sales of luxury cars, on which the tax was also imposed. Such microeconomic behavioral responses are always incorporated in the JCT's revenue estimates. Hence, any overprediction of receipts from that tax is unrelated to the effects of taxes on overall growth—the focus of the request for dynamic scoring.

Moreover, the facts of the case do not support any claims of underestimating those behavioral responses. The luxury tax, including the tax on cars, brought in more revenue than predicted, not less. Luxury boat sales did collapse, but that collapse began in the year before the passage of the tax.

Tax Avoidance and Evasion

Testimony presented to the Committee claims that estimators assume that behavioral issues like tax avoidance and evasion always cancel each other out. Tax avoidance and evasion do not cancel each other out in the revenue estimates. In fact, both of those types of behaviors reduce revenues in estimates. The JCT's revenue estimates regularly incorporate net changes in the tax base that result from tax rate-induced changes in the avoidance of taxes.

7. Congressional Budget Office, *Labor Supply and Taxes*, CBO Paper (January 1996).

8. D. Mark Wilson and William W. Beach, "The Economic Impact of President Bush's Tax Relief Plan," The Heritage Center for Data Analysis Report No. 01-01 Rev. (Washington, D.C.: The Heritage Foundation, April 27, 2001).

CBO's Models

CBO has been engaged in building—and using—supply-side models of the economy for several years. In those models, GDP depends on capital, labor, and technology, and increases in marginal tax rates reduce saving and labor supply. The models assume that markets clear and thus do not reflect any Keynesian response. The models also allow for alternative assumptions about the degree to which capital can flow across borders and the degree to which interest rates and wage rates are set by world markets. Details about the models are available for anyone to review.⁹

CBO does not believe that a single model or a single set of assumptions within a model adequately captures the current degree of uncertainty about the economy. For that reason, CBO uses various models to explore the implications of alternative assumptions. Using a single model with a single set of assumptions would be misleading.

Reservations About Dynamic Scoring

Testimony presented to the Committee criticizes some of CBO's reservations about dynamic scoring, but it misstates CBO's position. First, it argues that having to predict future policy should present no serious hurdle to dynamic scoring since CBO already has to make many assumptions in its baseline. The assumptions required for dynamic scoring of legislation are unique, however. In order to estimate the effects of current policy on the economy in the future, an assumption must be made about policy in the future. A typical "baseline" would assume that a tax cut would produce more debt or less surplus. The combined supply-side effects on labor and capital are negative in that case. If, however, government spending was reduced in the future, the effects would be positive.

Choosing a single assumption would put CBO in the middle of a key debate between the political parties with no guidance from data—or consensus within the economics profession—about how to select an assumption.

Second, the testimony misstates CBO's arguments about how the Federal Reserve would react to a change in fiscal policy. CBO does not think that the Federal Reserve would offset the growth in potential GDP that stemmed from a tax cut. If the supply side of the economy grew faster because of a tax cut, CBO believes that the Federal Reserve would accommodate that growth.

9. Shinichi Nishiyama, "Bequests, Inter Vivos Transfers, and Wealth Distribution," CBO Technical Paper 2000-8 (December 2000); Shinichi Nishiyama, "Measuring Time Preference and Parental Altruism," CBO Technical Paper 2000-7 (October 2000); Congressional Budget Office, *Description of Economic Models*, CBO Paper (November 1998); Kent Smetters, "Privatizing Versus Prefunding Social Security in a Stochastic Economy," CBO Technical Paper 1998-2 (August 1998); Congressional Budget Office, *Two Papers on Fundamental Tax Reform*, CBO Memorandum (October 1997); and Congressional Budget Office, *An Economic Model for Long-Run Budget Simulations*, CBO Memorandum (July 1997).

However, there is a reasonable question about how the Federal Reserve would respond to an unexpected stimulus to aggregate demand that flowed from fiscal policy. One approach is to assume that the Federal Reserve has a target for inflation and that it adjusts monetary policy to keep aggregate demand in line with the growth of aggregate supply. Alternatively, CBO could assume that a tax cut would have Keynesian effects on the economy, although such an approach would implicitly involve second-guessing the Federal Reserve's assessment about the state of the economy. As I mentioned in my testimony, economists disagree about the right approach to take.

Third, some of the testimonies to the Committee question the view that some types of tax cuts could cause people to work less. But, in fact, economic theory and evidence point to that result. People value the free time they have to spend at home with their families. If a tax cut—such as a rebate or a higher standard deduction—does not reduce the tax on income from an extra hour of work, the additional income will create an incentive for people to cut back their working hours and spend more time at home. Not everyone will respond, but some people (especially second workers in a family with one full-time earner) may decide to leave the labor force to care for children or aging parents or to pursue other interests.

Fourth, one testimony argues that taxpayers' perceptions are easy to determine because taxpayers view "a tax cut as a tax cut and a tax hike as a tax hike." Unfortunately, that tautology does not provide any guidance about whether they regard a change in tax policy as permanent or temporary. Should an estate planner assume that the estate tax will be fully reinstated in 2011, as specified in current law? Should a 30-year-old expect Social Security benefits as currently promised? Should taxpayers in the mid- to upper-income brackets expect to get hit by the alternative minimum tax in 2006? The answers to those questions about people's perceptions are not obvious, but they will significantly affect the results.

In conclusion, I believe that taxes, indeed all activities of the government, can have substantial effects on the economy, but that macroeconomic effects cannot be summarized in a single number, as would be required for dynamic scoring of legislation. Dynamic effects depend critically (and uniquely) upon future policy—policy that is inherently unpredictable. The assumptions about the financing of a tax cut, for example, will drive the outcome—alternative assumptions can produce opposite results.

