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### The Congressional Budget Office and the Demand for Pseudoscience

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*Politicians and journalists who participate in the policymaking process fail to appreciate the limitations of the analytical models used by the Congressional Budget Office (CBO). The demand for pseudoscience leads to unwise policy choices. Although the CBO is nonpartisan, the presentation of its model results serves to focus attention on scenarios that are favorable to intervention and to deficit spending. But the policy discussion does not include scenarios in which intervention fails to accomplish intended results or where economic shocks make a large government debt problematic. This Essay recommends ways for Congress to redirect the CBO, resulting in analysis and reporting that would provide better support for public policy.*

#### INTRODUCTION

*[During World War II, in the weeks prior to D-Day, some of my colleagues had the responsibility of preparing long-range weather forecasts, i.e., for the following month. The statisticians among us subjected these forecasts to verification and found they differed in no way from chance. The forecasters themselves were convinced and requested that the forecasts be discontinued. The reply read approximately like this: "The Commanding General is well aware that the forecasts are no good. However, he needs them for planning purposes."—Kenneth Arrow<sup>1</sup>*

Politicians and journalists who participate in the policy-making process fail to appreciate the limitations of the analytical models used by the Congressional Budget Office (CBO). This creates a bias toward risky interventions. The benefits of such interventions are overstated, and the perils of increased government debt are understated. I recommend that Congress redirect the CBO to undertake analysis and reporting that would provide better support for public policy.

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1. EMINENT ECONOMISTS: THEIR LIFE PHILOSOPHIES 46-47 (Michael Szenberg ed., 1992).

I do not attack the CBO as an institution. Like Michael Strain, I dissociate myself from some of the recent attacks.<sup>2</sup> Nor am I trying to second-guess CBO analysis, as others have attempted.<sup>3</sup> Nor am I arguing for making CBO models available for use by other economists, as Yuval Levin has suggested.<sup>4</sup> Instead, I point out that there is a misalignment between the hopes of policy makers and journalists for precise, scientific analysis, and the limited capabilities of economics to forecast with such precision. This leads to some specific suggested reforms for how the CBO ought to be used in the policy process.

The demand for pseudoscience by participants in the policy-making process leads to unwise policy choices. In this context, even the best analytical work of the CBO does more harm than good. Although the CBO is nonpartisan, the presentation of its model results serves to focus attention on scenarios that are favorable to intervention and to deficit spending. The policy discussion does not include scenarios in which intervention fails to accomplish intended results or where economic shocks make a large government debt problematic.

The rest of this Policy Essay proceeds as follows. In Part I, I distinguish between estimating the policy impact of legislation and estimating the budget impact of legislation. The press has come to treat both types of estimates as “CBO scoring,” even though the CBO brings unique expertise only to the budget-impact estimates.

In Part II, I review the challenges faced in economic modeling. It is important to understand how economic models necessarily fall short of their counterparts in engineering or physics.

In Part III, I review two recent important instances in which CBO model forecasts were wide of the mark. One was the forecast for employment growth that was projected to result from the fiscal stimulus enacted in 2009. Another was the forecast for consumer sign-ups for health insurance on the exchanges created by the Affordable Care Act of 2010.

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2. See Michael R. Strain, *Stop Bashing the CBO, Republicans*, BLOOMBERG (Aug. 1, 2017), <http://www.bloomberg.com/view/articles/2017-08-01/stop-bashing-the-cbo-republicans> [<http://perma.cc/SLP6-5MCQ>].
  3. See, e.g., John F. Cogan, Glenn Hubbard, John B. Taylor & Kevin Warsh, *On the Prospects for Higher Economic Growth*, HOOVER INST. (July 18, 2017), [http://www.hoover.org/sites/default/files/research/docs/on\\_the\\_prospects\\_for\\_higher\\_economic\\_growth\\_0.pdf](http://www.hoover.org/sites/default/files/research/docs/on_the_prospects_for_higher_economic_growth_0.pdf) [<http://perma.cc/98P6-GS3A>]; but see Brad DeLong, *Yes: The CBO's Growth Forecasts Are Not Unreasonable . . .*, GRASPING REALITY WITH BOTH HANDS (Aug. 2, 2017, 5:02 AM), <http://www.bradford-delong.com/2017/08/michael-strain-stop-bashing-the-cbo-republicans-bloomberg-stop-bashing-the-cbo-republicans-a-word-to-the-wise-from.html> [<http://perma.cc/6VGH-H9N6>] (critiquing the white paper by Cogan et al.).
  4. See Yuval Levin, *Modernizing the CBO*, NAT'L REV. (Nov. 18, 2014), <http://www.nationalreview.com/corner/392938/modernizing-cbo-yuval-levin> [<http://perma.cc/5DAF-4P5J>]; Yuval Levin, *Some Transparency for CBO*, NAT'L REV. (Aug. 10, 2017), <http://www.nationalreview.com/corner/450368/cbo-should-show-its-work-yuval-levin> [<http://perma.cc/M2FU-PHZB>].

In Part IV, I bring up the issue of “gaming” the CBO budget score. This happened with the tax cuts enacted during the Bush administration in 2001 and also with the Affordable Care Act.

In Part V, I offer recommendations that would enable policy makers to make better use of the CBO’s analytical capabilities. For a budget-impact analysis, the CBO should present a scenario matrix, showing how the budget may evolve under alternative assumptions about economic conditions, financial conditions, parameter estimates, and policy-impact assumptions. For policy-impact analysis, the CBO assumptions should not be used at all. Instead, judgments from a variety of outside economists, including both quantitative and qualitative analysis, should contend with one another.

#### I. BUDGET IMPACT AND POLICY IMPACT

We may think of the analyses undertaken by the CBO as having two components: a budget-impact component and a policy-outcome component. The budget-impact component forecasts the impact of a proposed policy on the federal budget. The policy-outcome component forecasts the impact of a proposed policy on a desired outcome, such as raising the level of employment or reducing the number of families without health insurance.

As it happens, in order to forecast the budget impact, the CBO usually must make policy-impact forecasts. For example, to estimate the cost of a farm subsidy program, the CBO must estimate how many farmers will benefit from the subsidy. But it is better to think of such an estimate as an assumption rather than as a “score.” It should be treated as a disputable conjecture, not as a fact.

Government tax revenues and spending on many programs depend on macroeconomic behavior and microeconomic behavior. Macroeconomic behavior means the overall level of economic output, interest rates, and inflation. Microeconomic behavior means the response in particular markets to changes in the environment, including legislation that alters incentives.

The CBO employs quantitative models of both macroeconomic and microeconomic behavior. These models are guided partly by theory and partly by statistical analysis of historical data. Policy makers routinely misuse the reported results from these models.

Whether they assess budget impacts or policy impacts, the CBO forecasts are treated as if they represent absolute certainty. In fact, the forecasts are highly unreliable. The budget-impact component is focused on a single estimate assuming a relatively benign environment without considering alternative scenarios.<sup>5</sup> The policy-impact component tends to overestimate the effect on desired outcomes, as illustrated in Part III below. Most troubling is the fact that partici-

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5. See *Processes*, CONG. BUDGET OFF., <http://www.cbo.gov/about/processes> [<http://perma.cc/5628-RHWT>] (last visited Nov. 4, 2017).

pants in the policy-making process treat CBO estimates of policy impacts as if they were scientific truth rather than as exercises in speculation.<sup>6</sup>

The CBO was created to undertake budget-impact analysis. It has developed institutional capabilities to perform this function. On the other hand, when it comes to policy-impact analysis, the CBO has little or no comparative advantage relative to experts in business, in academia, or at think tanks. These “outside” forecasters are at least as qualified as the CBO to undertake policy-impact analysis, and in fact the CBO routinely consults with these experts as part of its forecasting process.<sup>7</sup>

## II. THE FALSE HOPE OF ECONOMIC MODELS

The CBO was created by legislation in 1974, following three decades in which mathematical and statistical modeling had come to dominate the economics profession. From the Second World War through the 1960s, economists pursued the ability to fine tune the economy on the basis of such models. The federal government had mobilized the economy to help win the war, and the Department of Defense remained keenly interested in mathematical models of resource allocation. Generous Pentagon funding of research in linear programming and other methods helped to spur the profession’s movement away from verbal reasoning and toward mathematical modeling. Economists adapted techniques from physics and engineering to solve for the optimal path of a control variable to achieve a desired outcome over time.

However, unlike in physics or engineering, mathematical modeling in economics did not yield effective theory, meaning analysis that can be reliably used to achieve an intended result. Economists cannot claim that a particular model adequately captures the factors that matter in the real world. They cannot be confident that key determinants of economic behavior will remain constant. They cannot verify their models by using controlled experiments. While physicists and engineers could predict and control the behavior of a spacecraft with sufficient precision to land on the moon, economic conditions and policy outcomes often differ sharply from model-based forecasts. If the state of knowledge in physics and engineering were only as reliable as that in economics, then a spacecraft aimed at the moon would miss by tens of thousands of miles.<sup>8</sup>

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6. See Andrew Soergel, *The GOP’s Dangerous Dismissal of the CBO*, U.S. NEWS & WORLD REP. (Sept. 21, 2017), <http://www.usnews.com/news/economy/articles/2017-09-21/the-sudden-and-regrettable-demise-of-the-cbo> [<http://perma.cc/DPE5-NYYF>] (noting that CBO analysis “for decades has been considered objective”).

7. See *Objectivity*, CONG. BUDGET OFF., <http://www.cbo.gov/about/objectivity> [<http://perma.cc/MF3H-NGVP>] (last visited Nov. 4, 2017).

8. See generally Arnold Kling, *How Effective is Economic Theory?*, NAT’L AFF., Summer 2017, at 125.

The study of human society differs from the natural sciences. Humans have ideas in their heads, they communicate these ideas to others, and widely-communicated ideas affect how we behave as individuals and how we interact with one another. Our technological inventions, formal institutions, and social norms are part of the causal process that determines social outcomes. Thus, an economist faces greater challenges than a physicist. A physicist can build a model with relatively few causal factors and use that model effectively to predict how inanimate objects will behave. But because economic behavior involves mental-cultural phenomena, the causal factors are too numerous and evolve too rapidly for simple models of human society to achieve comparable accuracy.

In experimental natural science, investigators can work with a few causal variables while conducting many trials under controlled conditions in order to verify empirical regularities. In economics, there are many potential causal variables and fewer opportunities that represent controlled conditions. For example, there are dozens of candidate explanations for the timing and location of the Industrial Revolution or for the severity of the Great Depression.<sup>9</sup> However, economists have only one historical record from which to draw inferences.

Out of the large pool of plausible causal variables in a particular setting, the mathematical economist necessarily must select only a few to represent in a mathematical model. Such simplifications can work if the omitted potential causal variables can be demonstrated to be unimportant, as is often the case in physics or engineering. However, in economics, one theorist's idea of a variable that can be omitted may be another theorist's idea of a critical causal factor. For example, Deirdre McCloskey argues that the Industrial Revolution was caused by a change in attitude toward commerce and innovation, whereas many other economists have focused on material factors.<sup>10</sup>

So mathematical models are not perfect. Can we say that they are still at least an improvement over verbal reasoning or qualitative analysis? Not necessarily.

Mathematical models limit the scope of analysis. For example, in predicting the employment effects of fiscal stimulus, the standard mathematical model assumes a single labor market.<sup>11</sup> It ignores the fact that different people have different skills and aptitudes, and that creating jobs requires creating new sustainable patterns of specialization and trade.

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9. See, e.g., Mark Koyama, *Could Rome Have Had an Industrial Revolution?*, MEDIUM (Nov. 7, 2017), <http://medium.com/@MarkKoyama/could-rome-have-had-an-industrial-revolution-4126717370a2> [<http://perma.cc/FS6B-VTDC>].
  10. See Peter McNamara, *The Great Enrichment*, 17 CLAREMONT REV. BOOKS 82 (2017) (reviewing DIERDRE MCCLOSKEY, *BOURGEOIS EQUALITY* (2016)).
  11. See Olivier Blanchard, *The State of Macro*, 1 ANN. REV. ECON. 209 (2009), <http://www.annualreviews.org/doi/abs/10.1146/annurev.economics.050708.142952> [<http://perma.cc/5C9K-LXJ9>].

Critics of the CBO's analysis of health care legislation argue that the mathematical model fails to take into account the dynamics of the health insurance market. It ignores the difficulties that the health care exchanges are having with insurers leaving the markets. It overstates the incentive effect of a "mandate" (tax) on household decisions.<sup>12</sup>

Most economists understand that every model has its limitations. My complaint is not that the CBO's models are imperfect. That is understandable and unavoidable. Instead, my complaint is that the policy process ignores the flaws in the CBO models and fails to consider the implications of model uncertainty.

Although the CBO is the first to admit that alternative models and other methods of analysis yield different results, participants in the policy-making process ignore such warnings. Instead, the CBO model is treated as *the* model, crowding out other ways of analyzing and forecasting the impact of policy.

Specific numerical forecasts give policy makers a false sense of control. Models create the impression that policy tools will work exactly as intended. An increase in government spending will create exactly the intended increase in jobs. A tax penalty for not having health insurance will create exactly the intended increase in health insurance coverage.

Model-based forecasts create the impression that policy outcomes are certain. Forecasters will admit that the range of outcomes is uncertain, but policy makers demand to see just one number, not a wide range of possibilities. Based on this apparent certainty, policy makers plunge into interventions that in reality do not work nearly as well as projected.<sup>13</sup>

To summarize, the CBO's models are being misused in the policy process. Because of this misuse, the models may do more harm than good.

### III. SOME EXAMPLES

#### A. First Example: The Stimulus

The American Recovery and Reinvestment Act of 2009 (usually referred to as the "Stimulus") was intended to increase job creation. Calculating the effect of the Stimulus on the budget might seem straightforward. Indeed, some provisions of the Stimulus, such as the "cash for clunkers" program that offered subsidies to car owners to trade in older, fuel-inefficient automobiles, called for specific amounts to be spent. But other provisions, such as loan guarantees to companies in the renewable energy industry, had budget costs that were contingent on the financial performance of the companies receiving the guarantees. Estimating the cost of these contingent obligations necessarily involves making a forecast about what the firms receiving those guarantees will experience.

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12. See Doug Badger, *The CBO Bludgeon*, GALEN INST. (May 25, 2017), <http://galen.org/assets/Presentation-copy-Badger-post-on-CBO-study-of-AHCA.pdf> [<http://perma.cc/FG8G-LZDR>].

13. See, e.g., *id.* at 1 (noting that the CBO repeatedly overestimated enrollment in Obamacare).

Moreover, any change in spending or tax policy will have economic effects. For example, a tax cut may affect the “demand side” of the economy, leading to more spending by households and businesses. The tax cut also may have a “supply-side” effect, increasing the incentive to undertake taxable economic activity. Both the demand-side and supply-side effects may cause the revenue loss from the tax cut to be reduced relative to what would be projected assuming no such effects. In this regard, the budget-impact analysis depends on policy-impact assumptions. However, policy makers should treat these assumptions as exactly that—assumptions.

Given that it was clear that the Stimulus would increase the budget deficit, its enactment depended on Congress and the public believing that significant job creation would result. Making that determination required economic forecasting.

If assessing the budget impact of the Stimulus was not simple, assessing the policy impact of the Stimulus on job creation involved much more problematic economic forecasting. As Douglas Elmendorf, CBO’s director at the time, wrote in a letter to Senator Charles Grassley in 2009,

The macroeconomic impacts of any economic stimulus program are very uncertain. Economic theories differ in their predictions about the effectiveness of stimulus. Furthermore, large fiscal stimulus is rarely attempted, so it is difficult to distinguish among alternative estimates of how large the macroeconomic effects would be. For those reasons, some economists remain skeptical that there will be any significant effects, while others expect very large ones.<sup>14</sup>

Nonetheless, the CBO presented one specific forecast for the effect of the Stimulus. The CBO letter said,

CBO estimates that ARRA will increase employment by 0.9 million to 2.3 million by the fourth quarter of 2009, by 1.2 million to 3.6 million by the fourth quarter of 2010, by 0.6 million to 1.8 million by the fourth quarter of 2011, and by declining numbers in later years.<sup>15</sup>

This increase in employment was estimated relative to a “baseline” forecast for employment that assumed that no stimulus was enacted. That such forecasting is unreliable is shown by the fact that employment actually turned out to be *lower* with the Stimulus enacted than the CBO’s baseline forecast.<sup>16</sup>

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14. Letter from Douglas W. Elmendorf, Dir., Cong. Budget Off., to Charles E. Grassley, Senator, U.S. Cong. (Mar. 2, 2009), [http://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/03-02-macro\\_effects\\_of\\_arra.pdf](http://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/03-02-macro_effects_of_arra.pdf) [<http://perma.cc/F4X5-RENT>].

15. *Id.*

16. See Brian Riedl, *Stimulus Jobs Count: CBO Admits It Ignored the Economy’s Actual Performance*, HERITAGE FOUND. (Mar. 23, 2010), <http://www.heritage.org/budget->

The disappointing outcome of the Stimulus relative to the CBO forecast reflects some combination of two factors: the CBO began with an overly optimistic assessment of the economy in its baseline forecast; and the CBO overestimated the effect of the Stimulus on employment. To the extent that the baseline assessment was at fault, one can argue that the Stimulus was good policy, because it prevented a bad economic outcome from being worse. On the other hand, if the explanation for the disappointing path of employment is that the CBO made an overly optimistic assessment of the effect of the Stimulus, one can argue that the Stimulus was bad policy, because it raised the budget deficit without creating jobs at anything close to the rate predicted.

But we cannot know how much of the forecasting error was due to CBO's baseline assessment and how much was due to the CBO's economic model of how fiscal policy affects the economy. When there are two plausible explanatory causes for a single unique historical episode, there is no statistical method to determine the relative importance of the two causal factors. Thus, we do not know whether the CBO's economic analysis is reliable or not.<sup>17</sup>

The CBO employed a Keynesian, demand-side model of the economy. On the demand side, the CBO model ignores monetary policy. And it ignores supply-side effects entirely, except for small effects in the long run.<sup>18</sup>

Other macroeconomists have suggested that the demand-side effects of fiscal stimulus depend entirely on how the Federal Reserve Board reacts with monetary policy. For example, Scott Sumner has argued that fiscal stimulus has no effect, because the Fed offsets the stimulus by injecting less monetary stimulus than it would otherwise.<sup>19</sup>

Still other macroeconomists look at employment in terms of supply-side factors. For example, I have suggested that jobs are created when entrepreneurs

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and-spending/report/stimulus-jobs-count-cbo-admits-it-ignored-the-economys-actual [http://perma.cc/R4MN-C896].

17. The CBO undertook a retrospective analysis of the employment impact of the Stimulus. See *Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output in 2014*, CONG. BUDGET OFF. (Feb. 2015), <http://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49958-ARRA.pdf> [http://perma.cc/CQS6-T6BS]. However, the method amounted to simply re-running the same models used to make the original forecast, and taking the difference between the model results assuming the Stimulus relative to assuming no Stimulus. The study was able to take into account the actual timing of budget outlays. Otherwise, the CBO was unable to use actual economic behavior in its retrospective analysis.
18. See generally Bruce Bartlett, *Keynes Is Still King at the CBO*, WALL ST. J. (Nov. 18, 1998), <http://www.wsj.com/articles/SB911333665969634000> [http://perma.cc/3HBM-L5QS].
19. Scott Sumner, *Why the Fiscal Multiplier is Roughly Zero*, MERCATUS CTR. (2013), [http://www.mercatus.org/system/files/Sumner\\_FiscalMultiplier\\_MOP\\_090313.pdf](http://www.mercatus.org/system/files/Sumner_FiscalMultiplier_MOP_090313.pdf) [http://perma.cc/RS8D-QD3C].



discover new opportunities to exploit specialization and trade.<sup>20</sup> According to this view, fiscal stimulus would have to be aimed at unemployed workers in order to have an effect. Stimulus that only increases demand for categories of workers that already are employed would be useless. A study of the 2009 Stimulus in fact found that it increased demand mostly for workers who were otherwise employed.<sup>21</sup>

To summarize:

1. There are plausible theories of macroeconomics which would lead one to expect no employment gain from the Stimulus.
2. The CBO recognized that these plausible alternatives exist, but nonetheless it reported a single numerical forecast based on a model that ignores monetary offset or supply-side theories.
3. Relative to the CBO baseline forecast, employment was *reduced* in the aftermath of the Stimulus, which is contrary to what the CBO model predicted.
4. It is impossible to know whether the poor economic performance subsequent to the Stimulus reflects poor judgment on the part of the CBO in making its baseline forecast or whether the CBO's model is fundamentally unsound.

### *B. Second Example: Obamacare*

The Patient Protection and Affordable Care Act of 2010 (usually referred to as “Obamacare”) provides another illustration of the role that the CBO plays in the policy process. In this case, a key question concerned how effective the tax penalty for uninsured households would be in convincing them to sign up for health insurance through the exchanges set up for that purpose.

The CBO is at least as forthcoming about the challenges in forecasting the impact of health care reform as it was in describing the alternative ways of projecting the impact of the Stimulus. For example, in an analysis of health care legislation passed by the House of Representatives on May 4, 2017, conducted by staff of the CBO and the Joint Committee on Taxation, the CBO wrote,

The ways in which federal agencies, states, insurers, employers, individuals, doctors, hospitals, and other affected parties would respond to the changes made by the legislation are all difficult to predict, so the estimates discussed in this document are uncertain. In particular, states would have a wide range of options—notably, the optional waivers discussed above that would allow them to modify the minimum set of benefits that must be provided by insurance sold in the nongroup and

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20. ARNOLD KLING, *SPECIALIZATION AND TRADE: A RE-INTRODUCTION TO ECONOMICS* 135-76 (2016).

21. Garrett Jones & Daniel M. Rothschild, *Did Stimulus Dollars Hire the Unemployed? Answers to Questions About the American Recovery and Reinvestment Act* (Mercatus Ctr., Working Paper No. 11-34, 2011), [http://www.mercatus.org/system/files/Did\\_Stimulus\\_Dollars\\_Hire\\_The\\_Unemployed\\_Jones\\_Rothschild\\_WP34.pdf](http://www.mercatus.org/system/files/Did_Stimulus_Dollars_Hire_The_Unemployed_Jones_Rothschild_WP34.pdf) [<http://perma.cc/7N3Q-XJKT>].

small-group markets and that would permit medical underwriting for people who did not demonstrate continuous coverage. The array of market regulations that states could implement makes estimating the outcomes especially uncertain. But, throughout, CBO and JCT have endeavored to develop estimates that are in the middle of the distribution of potential outcomes.<sup>22</sup>

Nonetheless, the press emphasized the CBO forecast that close to 22 million fewer people would have health insurance under this proposed legislation.<sup>23</sup> This projection became a focal point for opponents of the bill.

CBO projections also were the center of attention when Congress crafted Obamacare in 2009 and 2010. These forecasts proved to be far off the mark in many respects. As Sherry Glied and others reported,

[T]he CBO overestimated marketplace enrollment by 30 percent and marketplace costs by 28 percent, while it underestimated Medicaid enrollment by about 14 percent. Nonetheless, the CBO's projections were closer to realized experience than were those of many other prominent forecasters.<sup>24</sup>

Others are even more critical of the CBO's models. Avik Roy, a health care policy specialist, claims that

[T]he CBO has massively overestimated the impact of Obamacare's individual mandate . . . . Indeed, the reason why Obamacare has a mandate in the first place, despite Senator Obama's opposition to one, is that the CBO believed in 2009 that the individual mandate would improve Obamacare's coverage estimates by 16 million.<sup>25</sup>

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22. *Cost Estimate: H.R. 1628 American Health Care Act of 2017*, CONG. BUDGET OFF. (May 24, 2017), <http://www.cbo.gov/system/files/115th-congress-2017-2018/costestimate/hr1628aspassed.pdf> [<http://perma.cc/3WMD-3EC2>].
  23. See, e.g., Thomas Kaplan & Robert Pear, *Senate Health Bill in Peril as CBO Predicts 22 Million More Uninsured*, N.Y. TIMES (June 26, 2017), <http://www.nytimes.com/2017/06/26/us/politics/senate-health-care-bill-republican.html> [<http://perma.cc/AGG2-LQ3Z>]; Scott Horsley, *GOP Senate Bill Would Cut Health Care Coverage by 22 Million*, NAT'L PUB. RADIO (June 26, 2017), <http://www.npr.org/2017/06/26/534432433/gop-senate-bill-would-cut-health-care-coverage-by-22-million> [<http://perma.cc/4T8Q-9EWD>].
  24. Sherry Glied, Anupama Arora & Claudia Solís-Román, *The CBO's Crystal Ball: How Well Did It Forecast the Effects of the Affordable Care Act?*, COMMONWEALTH FUND 1 (Dec. 2015), [http://www.commonwealthfund.org/~media/files/publications/issue-brief/2015/dec/1851\\_glied\\_cbo\\_crystal\\_ball\\_forecast\\_aca\\_rb\\_v2.pdf](http://www.commonwealthfund.org/~media/files/publications/issue-brief/2015/dec/1851_glied_cbo_crystal_ball_forecast_aca_rb_v2.pdf) [<http://perma.cc/KNY7-GYVN>].
  25. Avik Roy, *Four Critical Problems with the CBO's Latest Obamacare Repeal Estimates*, FORBES (Jan. 17, 2017), <http://www.forbes.com/sites/theapothecary/>

Roy went on to write, “In 2010, CBO estimated that 21 million people would be enrolled in Obamacare’s exchanges; the actual number was less than 12 million.”

In its forecasts of enrollment on the health insurance exchanges, the CBO model has not taken into account the problem of insurance companies losing money and exiting the exchanges, leading to a rise in premiums. As critic Doug Badger put it in March 2017,

In the real world, the Obamacare exchanges are in crisis, millions of uninsured people willingly pay or avoid IRS penalties, and consumers struggle with rising premiums and cost-sharing requirements . . . .

The agency assumes that only 26 million people under the age of 65 will be uninsured this year and next if Obamacare is left in place. To hit that mark, 2 million fewer people would have to be uninsured this year than last.

. . . [But] fewer people signed up during the open-enrollment period this year than last, due in part to premium hikes that averaged 25 percent. Other insurance companies didn’t bother raising prices; they fled the exchanges. By January, 1,000 counties were down to their last insurer. Five entire states have just a single company selling through the exchanges.<sup>26</sup>

To summarize:

1. In debating health care legislation, politicians and the press have stressed CBO’s projections for how provisions will affect household decisions to obtain health insurance.
2. These projections require the CBO to estimate how households will respond to the tax penalty for not buying insurance (i.e., the “mandate”) and how insurance markets will evolve as insurance companies experience losses.
3. The projections that CBO made in 2009 and 2010 have been far off the mark. Even assuming that the CBO forecasts are as good as or better than those of other economists, that does not justify treating them as if they were precisely true.
4. In general, the CBO seems to over-estimate the response to the mandate and by the same token is likely over-estimating the number of households that would not obtain insurance were the mandate to be repealed.

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2017/01/17/four-critical-problems-with-the-cbos-latest-obamacare-repeal-estimates/#4b2c2cf7ebc6 [http://perma.cc/5LHH-DU8H].

26. Doug Badger, *CBO’s Alternate Facts About Obamacare*, NAT’L REV. (Mar. 16, 2017), <http://www.nationalreview.com/article/445803/cbos-obamacare-alternate-facts-affordable-care-act-failing> [http://perma.cc/769U-M5AN].

## IV. GAMING THE CBO

In 2001, President Bush proposed major tax cuts. At the time, the CBO forecast for the government budget was relatively benign, showing medium-term surpluses that appeared to leave room for tax cuts.<sup>27</sup>

In addition, the tax cut legislation was designed to take advantage of the CBO's ten-year scoring window. Within that window, the tax cuts were back-loaded. However, in the final year of the window, the tax cuts were eliminated, creating the unrealistic impression that a last-minute tax increase would maintain fiscal soundness.<sup>28</sup>

When Obamacare was debated, its budget impact was of major concern. Once again, the ten-year window was used to game the budget process. In 2013, two CBO economists noted that whereas in 2010 the projected cost of Obamacare was \$788 billion from 2010-2019, "the estimated cost of the ACA's insurance coverage provisions between 2013 and 2023 is \$1,329 billion."<sup>29</sup>

The most blatant act of gaming in Obamacare was the inclusion of a provision for long-term care insurance that in the CBO score produced considerable budget savings, once again using the ten-year window for deceptive purposes. The policy was crafted to front-load payments into the insurance system while back-loading benefits. In fact, many economists understood that in the long run this provision would cause government health care spending to balloon, but within the ten-year window it produced savings.<sup>30</sup> In the end, because of a provision in the legislation requiring that the program be certified as actuarially sound over seventy-five years, the Obama administration was able to cancel implementation of this provision.<sup>31</sup> In short, Obamacare was scored as "deficit neutral" thanks to the ten-year window savings imputed to a provision that was fiscally unsound beyond that window and in fact was never implemented because it failed the actuarial soundness test.

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27. See Richard W. Stevenson, *Surplus Estimate Hits \$5.6 Trillion*, N.Y. TIMES (Jan. 31, 2001), <http://www.nytimes.com/2001/01/31/us/surplus-estimate-hits-5.6-trillion.html> [<http://perma.cc/2VS8-4M4M>].
  28. See Kyle Pomerleau, *How a Longer Budget Window Helps and Doesn't*, TAX FOUND. (June 27, 2017), <http://taxfoundation.org/longer-budget-window-helps-doesnt/> [<http://perma.cc/K26L-8TLJ>].
  29. See Jessica Banthin & Sarah Masi, *How Has CBO's Estimate of the Net Budget Impact of the Affordable Care Act's Health Insurance Coverage Provisions Changed Over Time?*, Cong. Budget Off. (Mar. 20, 2013), <http://www.cbo.gov/publication/44008> [<http://perma.cc/3APC-6F76>].
  30. See *Congressional Working Group Releases Report on Unsustainable CLASS Act*, HOUSE ENERGY & COM. COMMITTEE (Sept. 15, 2011), <http://energycommerce.house.gov/news/congressional-working-group-releases-investigative-report-unsustainable-class/> [<http://perma.cc/L843-HBN5>].
  31. See Robert Saldin, *Gaming the Congressional Budget Office*, NAT'L AFF. (Fall 2014), <http://www.nationalaffairs.com/publications/detail/gaming-the-congressional-budget-office> [<http://perma.cc/N3BQ-7U6M>].

The practice by legislators (and administrations) of gaming the CBO score is facilitated by the way that policy makers focus on a single scenario. If the CBO instead were tasked with reporting alternative scenarios, this would make its scoring more difficult to game. For example, in the case of the Bush tax cuts, scenarios that included more realistic policy paths and less benign economic environments would have showed the potential for serious adverse budget impacts.

## V. RECOMMENDATIONS

I have two broad sets of recommendations for changing the way that policy makers use the CBO models. First, for policy-impact questions, I recommend that policy makers solicit analyses from various think tanks, consulting firms, and academic departments. The CBO should work with these different estimates and get out of the business of building models to arrive at a single estimate. Second, for budget-impact questions, I recommend directing the CBO to develop scenario matrices in order to draw attention to possibilities other than the main baseline forecast.

The CBO and the President's Office of Management and Budget are the only two institutions with staff dedicated to forecasting and analysis of budget outcomes. This does not necessarily translate into expertise in forecasting policy impacts. When it comes to forecasting policy impacts, other government agencies, think tanks, and academic researchers often have more specialized relevant expertise.

For policy impact analyses, legislators and the CBO should draw from many sources for forecasts, including think tanks, academic economists, and business economists. Lawmakers probably would face a variety of analyses, some quantitative and some qualitative. No doubt many outside forecasters would use models that are similar to those now used by CBO. However, other outside forecasters might use models that incorporate other causal variables, and some experts might offer qualitative analysis of factors that are too difficult to quantify. Legislators and journalists might be disturbed to face an array of divergent analyses, but that is better than allowing themselves to be deceived by false hopes of scientific precision.

Legislators would lose the focal point of the CBO forecast of policy impacts. They would gain an appreciation for the uncertainty of policy impacts. It seems likely that legislators would be more cautious about undertaking interventions. They might be less inclined to enact sweeping measures and instead more inclined to begin with small-scale experiments and incremental steps. They might recognize a need for contingency plans and adjustments should desired results fail to materialize. They might undertake less heavy-handed blundering and instead opt for more pragmatic, trial-and-error approaches.

As noted above, the CBO must make policy-impact *assumptions* in order to forecast budget impact. But the CBO can and does incorporate outside forecasts in making its assumptions. When outside forecasts differ in their policy-impact estimates and these assumptions have major effects on the budget forecast, the

CBO should present various budget scenarios based on the range of policy-impact assumptions.

When it comes to budget impacts, the CBO should be respected for its expertise. However, policy makers should recognize that budget projections are contingent, not absolute. They should look at more scenarios than the relatively benign “baseline.”

Standard economic forecasting models are notorious for projecting steady economic growth and for missing recessions.<sup>32</sup> They also fail to anticipate significant changes in interest rates. But recessions and interest-rate spikes do occur, and policy makers should consider such scenarios.

Rather than focus on a single number, policy makers should look at a matrix of outcomes under various scenarios. An example of a scenario matrix might look like the following:

	Strong growth	Average growth	Weak growth
Higher interest rates			
Stable interest rates			
Low interest rates			

The columns in the matrix represent different possible outcomes for growth in GDP. The rows of the matrix represent different possible scenarios for interest rates. With strong economic growth, the government will obtain more tax revenue and pay out less in economic assistance programs. The weak growth scenario would incorporate a recession, a possibility which is nearly always omitted in CBO analysis as it is currently practiced. For example, in 2002, the CBO’s recession-free forecast saw a debt/GDP ratio ten years later at 7.4 percent. In fact, it reached 72.8 percent.<sup>33</sup>

With higher interest rates, interest payments on government debt will be higher. Also, the balance sheets of government-backed financial institutions might worsen, as happened with the savings and loan industry when interest rates rose in the 1970s.<sup>34</sup> That would cause increased spending on bailouts.

32. See, e.g., Prakash Loungani, *How Accurate Are Private Sector Forecasts? Cross-Country Evidence from Consensus Forecasts of Output Growth* (Int’l Monetary Fund, Working Paper No. 00-77, 2000), <http://www.imf.org/external/pubs/ft/wp/2000/wp0077.pdf> [<http://perma.cc/UY9V-PBTK>].

33. See Becket Adams, *This Prediction from the CBO Shows How Wrong They Were About the U.S.’s Economic Future*, BLAZE (Dec. 29, 2012), <http://www.theblaze.com/news/2012/12/29/this-prediction-from-the-cbo-shows-how-wrong-they-were-about-the-u-s-economic-future/> [<http://perma.cc/M2V2-YEQL>].

34. See Kenneth J. Robinson, *Savings and Loan Crisis*, FED. RES. HIST. (Nov. 22, 2013), [http://www.federalreservehistory.org/essays/savings\\_and\\_loan\\_crisis](http://www.federalreservehistory.org/essays/savings_and_loan_crisis) [<http://perma.cc/S4QB-6E32>].

This sort of scenario analysis would help put government guarantee programs in perspective. Under adverse scenarios, the cost of such programs rises by much more than it falls under favorable scenarios.

The CBO also should develop scenario analysis for other drivers of budget performance. For example, the financial outlook for Social Security and Medicare depends on trends in longevity and in medical technology. As noted earlier, different policy-impact assumptions also may imply different outcomes for the budget.

In projecting the budget impact of spending programs or tax cuts, the CBO could include scenarios for strong demand-side effects and for strong supply-side effects. This would enable the CBO to escape the perennial controversy over “dynamic scoring.”<sup>35</sup> Scenarios with strong demand-side and supply-side effects would, in effect, provide dynamic scores in addition to, but not instead of, more cautious estimates.

My guess is that scenario matrices would draw the attention of policy makers to the precarious nature of the budget. Under some scenarios, debt would rise so quickly that it could precipitate a crisis. Such possibilities are hidden from view in forecasts that focus on the benign, recession-free baseline.

#### CONCLUSION

The policy community does a disservice to the public by treating CBO forecasts of budget impacts and policy outcomes as if they had the status of scientific certainty. The forecast of policy outcomes should be outside of the CBO’s purview altogether, and instead should be left to contention among other quantitative and qualitative analysts. The forecast of budget outcomes should allow for uncertainty by including scenario matrices, so that policy makers understand how their decisions will play out under plausible alternatives to a plain-vanilla baseline scenario.

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35. See Douglas Elmendorf, “Dynamic Scoring”: *Why and How To Include Macroeconomic Effects in Budgetary Estimates for Legislative Proposals*, BROOKINGS INSTITUTION (2015), <http://www.brookings.edu/bpea-articles/dynamic-scoring-why-and-how-to-include-macroeconomic-effects-in-budget-estimates-for-legislative-proposals/> [<http://perma.cc/QK9A-EWN7>].

