

No. 18-49
Summer 2018

MERCATUS GRADUATE POLICY ESSAY

ANALYSIS OF THE CBO SCORING METHODOLOGY FOR THE
FEDERAL BUDGET

by Victoria Pryor



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Abstract

The Congressional Budget Office's (CBO) past scoring estimates have proven to be imprecise predictors of the actual costs of enacted legislation. After critiques of these inaccuracies, Congress passed rules in an attempt to improve upon the CBO's scoring methodology. In 2015, the House of Representatives adopted the Rules of the House for the 114th Congress, which established requirements for the CBO to use dynamic methods for scoring certain types of legislation for the first time. The 2016 Budget Resolution established these rules uniformly for the House and Senate. Before the enactment of these resolutions, the CBO's analyses typically used models with only micro-dynamic effects, such as behavioral responses to a piece of legislation but used static analysis on the macroeconomic level. In this study, I examine the evolution of the CBO scoring process and the reasons for its continued problematic modeling. Warshawsky (2015) finds that some of the errors of the CBO could be resolved by an increase in transparency of their analyses by providing full descriptions of their models and estimates, but he is not able to explain some of the more egregious errors made by the CBO. I use a public choice framework to determine what incentive structure is in place that deters the CBO from using the latest information and types of modeling available, and I determine that its errors are in part due to different incentives faced by governmental agencies compared to the private sector. By using the original scoring of the Patient Protection and Affordable Care Act (ACA) as a case study, I find that main reasons for errors in scoring will not be addressed by the implementation of the new scoring guidelines. I contend that although the quality and accuracy of the CBO's analyses could be improved by the implementation of macro-dynamic analysis, additional changes in the scoring requirements are necessary to generate better budgetary and policy predictions.

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Acknowledgments

Special thanks to my committee members- Chuck, Jerry, and Mike- for your continued guidance, support, and insight throughout the past year. The knowledge and expertise each of you were able to bring to my essay shaped the final product into something I would never have imagined possible. Thank you, also, to everyone at Mercatus who supported me for the past two years.

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Legal Requirements for the Congressional Budget Office Scoring

Section 402 of the Congressional Budget and Impoundment Control Act of 1974 (Budget Act) originally put the CBO in place to assist members and committees of both Houses of Congress. This Act was a result of arguments between the legislative and executive branches on how the budget should be controlled, and served the desire of Congress to gain back control of spending (Hederman 1978). The CBO was originally established to produce legislative cost estimates, which have evolved since their inception. In 1976, the CBO prepared 350 formal cost estimates compared to the roughly 500 to 600 estimates produced in a given year currently (Hederman 1978; Elmendorf 2015).

Section 257 of the Balanced Budget and Emergency Deficit Control Act of 1985 established procedures for how the CBO would create the baseline estimates for subsequent scoring of legislation. Direct spending and receipts are assumed to continue at the level prescribed certain elements of existing law, while other statutory limitations are disregarded. Specifically, this means that certain expiring programs spending \$50 million or more that are part of mandatory spending will be deemed to remain in effect in the CBO's baseline even after the program's spending authority is projected to be curtailed due to the depletion of its authorizing trust fund (Blahous 2012). Section 257(c)(6) specifically requires that programs appropriated as part of a partial-year continuing appropriations would be assumed to remain in effect for the entire fiscal year in the baseline, making the extension of these programs appear costless (Heniff 2012).

In the 113th Congress, the House of Representatives adopted the Rules of the House for the 114th Congress, which included requirements for the CBO to use dynamic methods for scoring certain types of legislation (H. Res. 5, 2015). House Resolution 5 requires the CBO to

incorporate the macroeconomic effects of major legislation into the official cost estimates “to the extent practicable” used for enforcing the budget resolution and the other rules of the House. Breaking down this new scoring requirement, I will explain each section in parts. First, the rule directs the CBO to incorporate budgetary feedback from “macroeconomic effects.” The CBO and the Joint Committee on Taxation (JCT) have included micro-level responses in their analyses for years that include behavioral responses to a bill, such as consumption and investment changes of individuals. This rule just expands the responses to include macroeconomic-level impacts, such as effects of the legislation on GDP, employment, and investment. The “dynamic scoring” method uses the calculations from the micro-simulation models from the JCT as inputs into the macro models to calculate the overall impact of the legislation on the economy (Barthold et al. 2015).

Second, the House resolution deems “major legislation” as any bill or joint resolution that causes a gross budgetary effect of 0.25 of GDP or greater in any year over the next ten years, which is the budget window that the CBO uses in its scores. If a bill doesn’t have a large enough effect to qualify, the Chairman of the Budget Committee can also designate the bill as “major” so that the CBO will have to use macro-dynamic analysis in its score. House Resolution 5 replaces the previous House rule requiring supplemental analysis of a range of macroeconomic estimates for tax bills including different models and assumptions (“The House’s New Rule on Dynamic Scoring” 2015). The analysis also includes a qualitative assessment for budgetary effects for the subsequent 20-year period (H. Res. 5, 2015).

Third, the rule only directs macroeconomic effects to be included in the cost estimate if it is deemed “practicable” by the CBO and JCT. This condition gives the CBO and JCT leeway to find that producing a dynamic score for legislation considered on short notice is not practicable,

since the process is time consuming and cumbersome. The rule to incorporate dynamic effects only applies to legislation affecting mandatory spending and revenue. The resolution does not apply to appropriations bills or legislation subject to appropriations. Also, legislation that goes directly to the House floor without committee consideration is not subject to the rule (H. Res. 5, 2015).

Finally, the score, if qualified as major legislation and deemed practicable, requires a single point estimate with dynamic effects rather than a range of potential outcomes, as was done previously (Barthold et al. 2015). CBO analysts may incorporate confidence intervals giving a range of possible outcomes but are not required to do so for every estimate. Despite all of these caveats carved into the rules that allow leeway for CBO scoring, since the rules merely stem from agreements in the House, they are not legally enforceable and are often waived completely. The 2016 Budget Resolution established these rules uniformly for the House and Senate, but stipulated that the scores would only be used in the Senate for informational purposes (S. Con. Res. 11, 2015).

Legal Requirements for the Joint Committee on Taxation Scoring

The JCT is a committee of Congress established by the Revenue Act of 1926 to better advise Congress on internal revenue laws (“History of the Joint Committee” 2018). The Congressional Budget Act of 1974 stipulated that JCT staff would provide the tax portion of a scoring estimate of a bill considered by the House or Senate (“Statutory Basis for the Joint Committee on Taxation” 2018). CBO-produced revenue baselines are used as the JCT’s benchmark for estimating proposed changes in tax law (“Joint Committee Revenue Estimation Process” 2018). In 1997, the House adopted a rule stating that the chair of the Ways and Means Committee could

request dynamic scoring estimates (Committee for a Responsible Federal Budget 2012). These estimates would be used for informational purposes only. This rule was replaced by House Rule XIII (3)(h)(2) in December of 2003, which required the staff of the JCT to provide a macroeconomic impact analysis of all tax legislation reported by the Ways and Means Committee that would amend the Internal Revenue Code of 1986 (Joint Committee on Taxation 2003). For major legislation, the JCT provides quantitative analysis using dynamic scoring that includes possible effects on GDP, employment, investment, revenues, and other macroeconomic variables if practicable. For most tax bills, the JCT contends the expected effects are so small that further analysis isn't warranted. For some legislation, only short qualitative analyses are provided. The JCT currently uses three different macroeconomic models: a structural macroeconomic equilibrium growth model (MEG), an overlapping generations model (OLG), and a dynamic stochastic general equilibrium model (DSGE). Since the passage of House Resolution 5, the JCT has been subject to the same requirements as the CBO for producing dynamic analyses. Since the JCT was previously required to produce dynamic analyses through House Rule XIII (3)(h)(2) from 2003, its scoring methodology has stayed relatively consistent over this time period.

Case Study

Since the initial release of the score estimating the revenue and spending effects of the ACA in 2009, many scholars have harshly critiqued the CBO for its analyses that have proven to be highly inaccurate once the effects of the bill were realized (Blase 2017; Warshawsky 2015). Certain portions of the ACA score, although proven inaccurate years later, are not readily testable and the cause for inaccuracy cannot easily be determined. The projection of GDP, for

example, must consider a number of factors in the economy and is likely to differ from projections for a number of reasons that cannot be easily pinpointed. The CBO has revised its GDP projections downward after the enactment of the ACA because of a slower recovery from the recession than predicted. Unpredictable changes in the economy also led to differences in the projected deficit or surplus caused by the ACA and what was realized. For example, in the CBO and JCT's initial score of the ACA, they predicted the ACA would lead to a reduction of the deficit by \$124 billion over a 10-year period (Elmendorf 2014). In 2009, eight years after the CBO released this score, the ACA was projected to add \$340-530 billion to the deficit (Blahous 2012). The CBO's prediction of the amount that ACA would affect spending and revenues was distorted by the scorekeeping rules it operated under and by the fact that it assumed the implementation of various provisions that outside experts identified as unlikely to produce their projected savings (Blahous 2012). The CBO reasserted their prediction years later in an estimate released in February of 2014 that its risk corridor program would net the federal government \$8 billion over three years (Blase 2017).

Although a portion of this inaccuracy is not easily testable, certain programs established by the ACA were found to be a large portion of the cause for the CBO's inaccurate ACA deficit estimations. For example, Brian Blase (2017) found that the risk corridor program actually increased the deficit by \$2.5 billion in 2014 and \$5.8 billion in 2015 alone. This is a large miscalculation by the CBO that is likely, in portion, attributable to poor estimation. Some of the differences in the CBO's ACA deficit projections and the actual outcomes of the bill years later were due to components of the bill not being implemented as originally written, while other differences were due to poor estimation, or a combination of the two. For example, part of the reason the projections for spending and revenues were miscalculated was due to the CBO's

inclusion of the CLASS (Community Living Assistance Services and Supports Plan) program and tax provisions, such as the “Cadillac tax,” in its analysis as contributing a largely positive budgetary effect (Warshawsky 2015). The CBO and JCT predicted that the CLASS program alone would contribute \$72 billion in revenue over the 10-year period in the Senate estimate and \$102 billion in the House estimate, even though it was widely known that the CLASS program was financially unsound (ibid.). The CBO projected around 4 percent of the adult population would enroll in this program by 2019 and downplayed the severe adverse selection problem of participation in the program (ibid.). The lack of financial stability of the program led Congress to eventually repeal the program on January 1, 2013, so CLASS did not reap the short-term forecasted revenue that the ACA depended in large part on for fiscal stability. Although the CBO’s initial score of the CLASS program was widely critiqued for being overly optimistic, the program’s repeal in 2013 also had a large impact on overall deficit projections in subsequent years.

Inclusion of large budgetary effects of tax provisions that still have not gone into effect, such as the “Cadillac-plan” tax, also inflated the revenue portion of the score. In a 2011 report, the tax was projected by the CBO and JCT initially to bring in \$12 billion in its first year of implementation and to total \$87 billion in revenue over its first 4 years. The Cadillac tax was originally planned to go into effect in 2018, but Congress delayed the implementation date to 2020 and then later to 2022. The subsequently introduced American Health Care Act (AHCA) also included a provision to delay the Cadillac tax to 2026 (Lieberman 2017). Although the AHCA was not signed into law, the proposal displays a desire within Congress to continue to delay implementation of the Cadillac tax for the foreseeable future. The lack of implementation of the Cadillac tax and the repeal of the CLASS program led to vast changes in the budgetary

effects of the ACA. Despite these faults, the substantial impacts to the ACA score from these programs cannot be completely attributed to faulty analysis since the CBO was required to assume that both the CLASS program and Cadillac plan tax would be implemented as initially written.

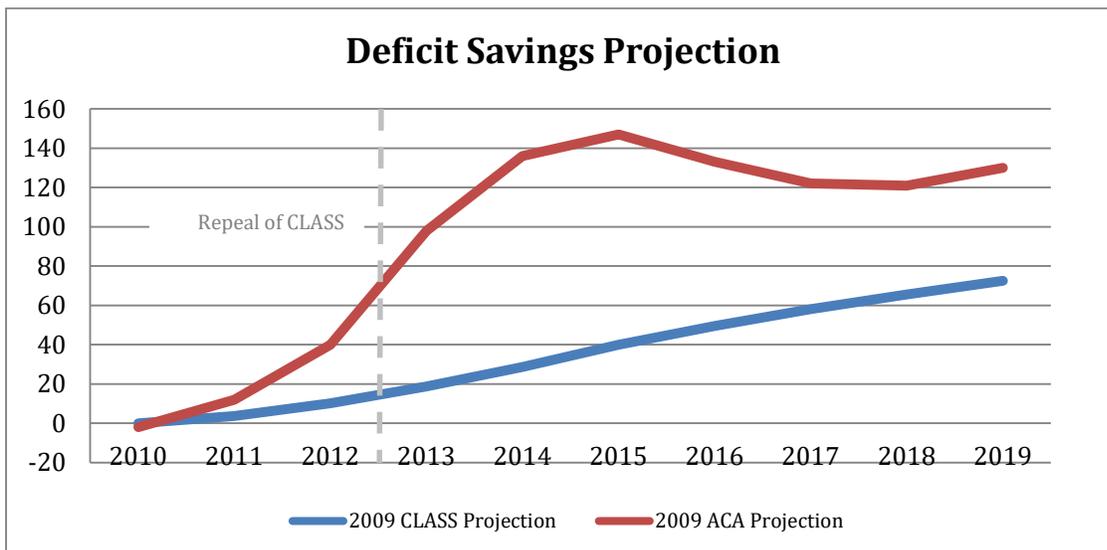
Analysis of Case Study

In this section, I analyze these specific provisions of the ACA cost estimate that skewed the revenue portion of the deficit projection and have been subject to wide critiques to determine the reason for inaccuracies. I find to what degree the differences in the CBO's score and the actual outcomes of the bill years later were due to components of the bill not being implemented as originally written, to scoring requirements restricting how the CBO must score legislation, to overly optimistic assumptions compared to outside sources, or a combination of these reasons.

CLASS Program

Since the implementation of the ACA, scholars have discovered that the financial instability and eventual repeal of the CLASS program in 2013 was a large reason for inaccurate revenue projections from the ACA. The entire basis for how the CLASS program was projected to be such a large revenue source for the ACA in the CBO score was timing. As seen in figure 1 below, the revenue from the CLASS program is such a substantial portion of the total revenue from the ACA and was projected (until it was repealed) to be more significant in the middle of the 10-year period. The program was written in the legislation for beneficiaries to begin paying premiums starting in 2011, but they would not begin to see the benefits until 2016 (Nix 2011). Because of the timing of upfront costs with delayed benefits, the CLASS program appeared to reduce the deficit when it only would have reduced the deficit during the 10-year window that

the CBO is required to use for its score. In the CBO’s cost estimate for the House version of the ACA, it notes that although the CLASS program would reduce the deficit by \$102 billion in the 10-year scoring period, it would start adding deficits in the third decade, or 2030, and succeeding decades by tens of billions for every 10-year period. The CBO also noted that the CLASS program would eventually add more to deficits in the future than it would reduce deficits in the near term (CBO 2009). This manipulation of the timing of receipts and expenditures by those who fashioned the ACA created a false perception that the healthcare law was beneficial to the budget when, in reality, any such effect was only temporary. Although the CBO was restricted to score the legislation as written for a 10-year window, it did provide additional information of the increased deficits that would be incurred from the CLASS program in the long run. Despite this manipulation of the 10-year scoring window, the CBO scored the bill in the way that it was required and directed to do and made it clear in the text of the score that CLASS’s positive impact on the deficits was only temporary.



Source: CBO

Figure 1: Deficit Savings Projection for the CLASS Act and the ACA (in billions of dollars)

Contrary to the CBO, the Centers for Medicaid Services (CMS) predicted only \$38 billion in revenue over the 10-year period and that the deficits stemming from the CLASS program would begin as early as 2025 (Blase 2010 and 2011). Therefore, the 10-year estimate by the CBO paints a more positive outlook of the program than CMS, but the accompanying information given by the CBO does show that the program will not be financially stable in the long term. The front-loaded revenue that was put into the trust fund created by the CLASS program, although portrayed in the CBO projection as revenue that would pay off future deficits incurred, was also not specifically reserved for future benefits and could be used by the government to fund other programs (Blase 2011). This provision means that the program would increase the deficits sooner than the CBO's predictions if the revenue in the trust fund was used for anything other than the CLASS program. The CBO must score the provision in this way since the score only includes revenue and costs for this specific piece of legislation and not others that could use the trust fund.

Despite the looming increase in deficits predicted to be caused by the CLASS program, the CBO noted in its 2009 cost estimate that premiums would be set to ensure solvency of the program. The CBO did not predict or incorporate the high risk of failure of the program in its original estimates. Unlike the scoring requirements that bound the CBO in its deficit projections, the CBO's failure to include appropriate risk assessments into the program's success was not due to a scoring requirement. The CLASS program's risks were well known and documented before the ACA ever became law. For example, the CBO stated in its cost estimate for the House bill that the program could be subject to considerable financial risk in the future if it could not attract enough healthy enrollees into the program. The CBO also notes that attracting a sufficient number of healthy enrollees would be difficult for numerous reasons such as limited funding for

marketing the program, the increased risk of adverse selection from smaller enrollment numbers, and the provision requiring the program to accept any enrollee regardless of their possibly poor health status. Despite these concerns, the CBO lists a small number of reasons such as the annual open enrollment period and the substantial premium subsidies available in the exchanges for why it believes that a majority of the adverse selection concerns would be mitigated (CBO 2009). Despite the prediction of mitigation of adverse selection by the CBO, the chief actuary at CMS stated that the adverse selection problem created a very serious risk of making the program unsustainable, with the American Academies of Actuaries expressing a similar concern (Blase 2011).

The CBO also assumed that about 4 percent of the adult population would enroll by 2019 in the House version, despite the Medicare actuary predicting a participation rate closer to 2 percent (CBO 2009; Warshawsky 2015). The CBO used its prediction based on the participation rate for the opt-in long-term care insurance program, which is 5 percent (Blase 2010). One could contend that the CBO's estimate of enrollment, based on these comparisons, is not too optimistic or pessimistic based on other sources. This may be true, but it does not support its argument for mitigation of the adverse selection. Even at the higher estimate of a 5 percent participation rate, this rate is too low to be considered "actuarially sound." "Actuarially sound," as defined by the American Academy of Actuaries, is where the revenue brought in by a program is projected to be sufficient to fund the program benefits and administration over a 75-year period. This means that none of the predicted participation rates for the program would be high enough for it to be sustained in the long run.

Therefore, a large portion of the reasons for reality looking differently than the original estimate of the CLASS program was the lack of the repeal of the program. From 2013, when

CLASS was repealed, through 2019, a 64 billion reduction in the deficit was originally projected to stem from the program. The CBO was required to include the program in its score, and it clearly stated in the text that the deficits would be increased in the long run from the program. Despite this statement, the CBO assumed that the adverse selection concerns would be mitigated even though the evidence showed the opposite. The assumption of mitigation of adverse selection also led to portions of the CBO's estimate being more optimistic than outside sources, such as CMS and the Medicare actuary. The CBO cannot speculate whether Congress will repeal a program, but it could have included a risk assessment of the program and concluded that the program was financially unstable in the long-term in its qualitative portion of the assessment. The CBO has made similar statements in recent budget baseline projections. For example, the CBO has noted that spending continuing on the same path would lead to unsustainable budget deficits in the long run (CBO 2018). It is not completely clear why portions of the CLASS program estimates are more optimistic than outside sources, but I will argue that it is due to congressional influence.

“Cadillac” Tax

Similarly to the repeal of the CLASS program having an impact on the ACA score partially outside of the CBO's control, the “Cadillac” plan tax has also not been implemented as originally written. As I noted earlier, the tax was originally planned to go into effect in 2018 but implementation has been pushed back to 2022. The CBO cannot foresee or speculate on possible political effects on a law so, therefore, the CBO must simply score the tax as if it will be implemented as expected. This, in addition to the CLASS program, contributed to the inaccurate picture of the ACA's impact on the deficits that could not have been ignored in the score by the CBO, since they were required by the Budget Act to be included in the cost estimate.

Considering this, it is also impossible to judge whether the CBO's revenue predictions for the tax would have been accurate if it had been implemented as originally written since it still has not been implemented.

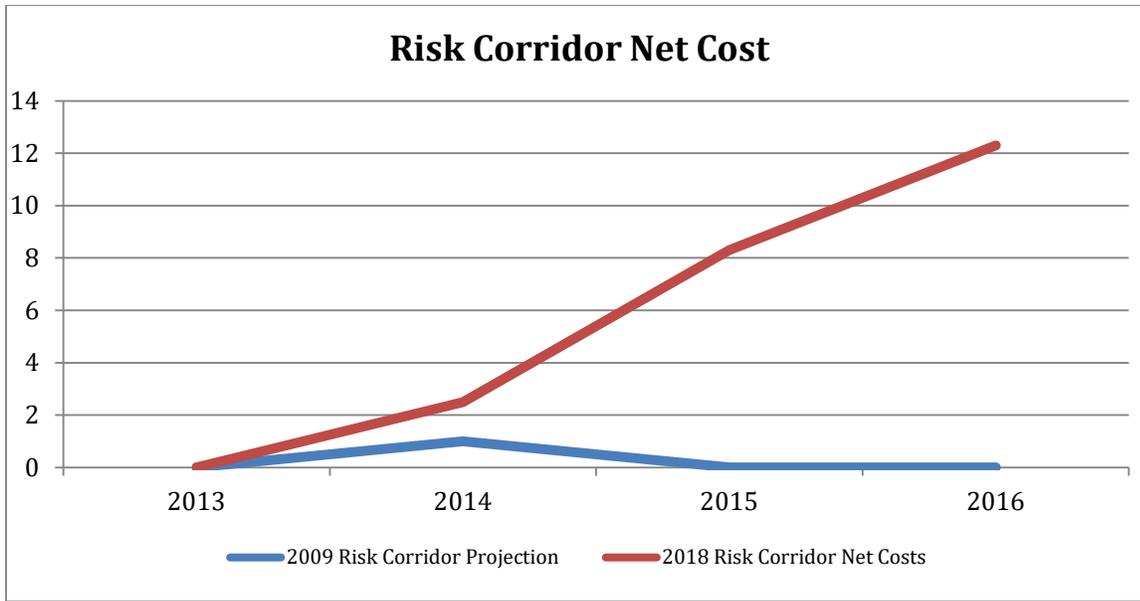
Risk Corridor Program

Like the CLASS program, the CBO incorrectly predicted that the risk corridor program would bring in revenue when, in reality, it increased the deficits. Unlike the CLASS program, though, the risk corridor program was not repealed. As part of the reinsurance and risk adjustment portion of the ACA, the program was originally intended to promote accurate premiums by discouraging insurers from setting high premiums and then subsidizing those same insurers with extreme losses or gains that participated in the exchanges. The intention behind the program was to have the insurers that were making larger than expected gains to subsidize those that were making larger than expected losses through the Department of Health and Human Services (HHS). Although this setup appears that it would appear to net to zero, the original statute does not require this (PL 111-148, Sec 1342). Therefore, the plan could either bring in large revenues or costs depending on how premiums are affected. The CBO predicted in the original cost estimate of the Senate version of the ACA that the risk corridors would net the government \$1 billion over the ten-year period (CBO, 2009). The CBO stated in its assessment that it predicted premiums would be 5 to 7 percent lower for the public plans on average than for the private plans in the exchanges (CBO 2010).

In an April 2014 report, the CBO reasserted that the outlays and revenues for the risk adjustment, reinsurance, and risk corridors would have no net budgetary effect based on its estimation of \$186 billion in payments and \$186 billion in collections. Likewise, the risk corridor payments to insurers would total \$9 billion and collections would also total \$9 billion, causing no

budgetary effect (CBO 2014). This assumption comes from a final regulation issued by HHS in March of 2014 titled 'Risk Corridors and Budget Neutrality.' From this, it was assumed the risk corridor would be implemented in a way in which there would be equal payments coming to and from the government, resulting in no net effect on the budget. The CBO goes on to say that it believe the Administration has sufficient flexibility to ensure this happens (CBO 2014). The rule from HHS states that any insufficient payments to insurers would be made up for by future collections. Insurers eventually must be reimbursed in full for the previous year's shortfall before they can be paid for the next year (Rupp 2018). Since then, the 2015 and 2016 appropriations bills also limited the payments to not exceed revenues brought in (Cox et al. 2017). This implies that although the CBO intends to have budget neutrality, this rule only creates budget neutrality in the present but not into the future. Therefore, Congress has not fully paid out to insurers as required by law in the original statute. The payments to insurers must eventually be paid. This assumption of budget neutrality by the CBO was inaccurate.

Now that the years the risk corridor program was intended for have passed, it is clear that the plan did not bring in as much revenue as it cost, as it is apparent from figure 2 below. According to CMS data, net costs from the program are currently at \$12.3 billion accumulated from the three years.



Source: CBO

Figure 2: Risk Corridor Costs Projection and Net Costs (in billions of dollars)

The CBO would need to assume that the insurers had enough foresight of premiums and enrollees' health and how they would react in the market to be able to implement the risk corridor program in a way where costs and collections would net to zero. The CBO and HHS assumed pooling the risk between HHS and the qualified health plans would be enough to stabilize the premiums and allow for accurate rate setting (CMS 2012). This is another example of the CBO making an optimistic assumption that the pooling of risk would stabilize the market in a way where insurers could easily predict accurate premium rates. Insurers and the CBO underestimated the riskiness of the enrollees and are now suffering the economic consequences from it. This, like the CLASS Program, is an example of adverse selection that the CBO underestimated.

Public Choice Analysis

My analysis of the CBO's scoring of the ACA demonstrates that portions of the errors are due to legislation not being implemented as originally written, some are due to the scoring requirements

restricting the CBO's ability to make the score match reality more accurately, and finally other errors can be attributed to an overly optimistic analysis compared to outside sources. Although the reason for why the CBO's score of the ACA was overly optimistic in some way is unclear, there are a few explanations.

First, a comprehensive theory of the CBO's scoring methodology cannot exclude congressional influence. The CBO frequently mentions its process for scoring in reports. It states that it reads the proposed legislation to fully understand its implications, consults outside experts, looks at the empirical evidence from existing studies, analyzes the behavior of relevant actors including states, and employs the use of multiple models to capture the complex interactions (CBO 2017). The one thing it rarely mentions is how the CBO must regularly work with members and committees in Congress. Before bill text for a proposal is even fully crafted, the CBO meets with the staffers in the offices of those crafting the bill. Those offices inform the CBO of the assumptions they wish for it to employ based on the legislative intent of the bill. Although the CBO is not legally required to use this advice, this process influences how the score will look.

Another form of congressional influence on the CBO is Congress' direct control over the Director's employment. The Director of the CBO is a political appointee with the Speaker of the House of Representatives and the President Pro Tempore of the Senate jointly appointing the Director of the CBO for a term of four years. The Director of the CBO can be removed from office simply by resolution from one body of Congress. This incentivizes the Director to listen to and take into account the advice and legislative intent of the current majority party in Congress, since they can have a large sway over their employment. For example, June O'Neill was director of the CBO from 1995 to 1999 and stepped down amid criticism from the current Speaker of the

House and other Republican leaders, knowing she would be replaced at the end of her term (Pianin 1998). Douglas Holtz-Eakin, CBO director from 2003 to 2005, also stepped down after receiving ire from congressional leaders for not toeing the party line (Rosenbaum 2005). When Republicans took control of both houses of Congress in 2015, they quickly replaced Douglas Elmendorf with the more conservative Keith Hall (Sherfinski and Dinann 2015). Despite Hall's ties with Republicans over the years, the recent cost estimates produced by CBO led House Republican lawmakers to suggest they would use a rare budget tool that would abolish 89 jobs from the budget analysis shop of the CBO (Clark 2017). Although the CBO attempts to avoid partisan influence, the very nature of being housed in the legislative branch makes it impossible for the CBO to not be influenced, by some degree, by the political body it is working for.

I argue that although there is some degree of congressional influence on the CBO, the overall influence in the long run is nonpartisan. Buchanan and Tullock conclude in their book, *The Calculus of Consent*, that majority rule can operate safely in legislative assemblies provided there is a general consensus on the constitution (Buchanan 2003). This theory, which comes about from public choice theory, can also be applied to rules guiding the CBO's scoring methodology. There is general consensus from both parties that there should be some level of consistency in the scoring methodology but also some level of control for those in the majority at the time. Although this method does not allow for a scoring methodology that would be as accurate as one in the private marketplace that is influenced by a different set of incentives, both parties agree to keep it as it is for their overall benefit. This degree of influence from the majority party can explain, in part, why the CBO's ACA score was more optimistic than other projections. This consistency from both major parties came about at a point of a constitutional and budget crises in our history. The Budget Act of 1974 was passed during a time when there was broad

consensus in Congress that it was necessary to rein in the power of the executive branch with a reformed budget process and the creation of the congressional budget committees and a nonpartisan congressional budget office (Kosar 2015). The Balanced Budget and Emergency Deficit Control Act of 1985 and the 1990 Budget Enforcement Act tried to repair the spending problems created by the Budget Act of 1974. Despite small changes over time, the Budget Act will remain the law of the land for budgeting and scoring until a crisis comes about that gains support of both parties in Congress to fix.

Another reason for sustained estimation errors in CBO's reports is consistency bias. In economic forecasts that have such a high amount of uncertainty, the likelihood for corrections to those forecasts in the future is also high. In a competitive market for economic forecasts, these errors would need to be corrected rather quickly or the reliability of those forecasts would be likely questioned. The use of one economic forecast over another in this competitive market would force forecasters to correct the errors quickly so that their estimates could continue to be considered trustworthy and reliable. Unlike in this market, which could be filled with think tanks, academics, private firms, and the like, the CBO is the only market for forecasting cost estimates for Congress. Although members of Congress can use outside forecasts to try to incentivize the CBO to maintain the same level of accuracy, the cost estimates and budget baselines created by the CBO are the only ones that can influence whether a bill is able to be passed based on legislative restrictions. Therefore, the CBO faces a different set of incentives when deciding whether previous estimates should be corrected. Any typical economic analysis that would correct for these errors from year to year is likely to anger members of Congress and make the CBO seem incompetent (Penner 2001). Therefore, the high serial correlation of errors that is common in forecasts can be exacerbated even further for the CBO.

Another reason for error that I previously mentioned is the restriction on the CBO to not speculate on how Congress might react to a piece of legislation for political reasons, so the CBO does not include possible or even probable reactions from Congress in the future (Penner 2001). Although not speculating on possible political behavior allows the CBO to argue its nonpartisan nature, it prevents the CBO from doing predictions that fully incorporate behavioral effects. As mentioned previously, the CBO and JCT have included microeconomic behavioral responses in its scores of proposed legislation for many years now and are now starting to incorporate macro-dynamic responses for pieces of major legislation. This requirement enacted in the House rules indicates a desire from Congress for the CBO to include more possible effects of the proposed legislation to, in theory, make the score more accurate. Without the inclusion of the political repercussions of a piece of legislation, considering the political environment in which the legislation stems, the CBO score will be excluding large effects. The Class Program and Cadillac tax are examples of this political influence that had to be neglected in the cost estimates. Both programs were not implemented as originally written in the ACA. The Cadillac tax was not implemented because of political influence, while the CLASS program was because the program was actuarially unsound. Both programs were politically unpopular and were not sustainable in the long run for this reason.

Implementation of New Scoring Requirements

For decades, there has been a push by Republicans in Congress to implement macro-dynamic scoring. In the past few years, this has been starting to become a reality. The House rules for the 115th Congress were the first to include formal language regarding dynamic scoring in CBO scoring requirements. While the CBO has begun to implement dynamic scoring, the CBO is far

from including these methods in every cost estimate it releases. For example, the original House version of the Tax Cuts and Jobs Act passed the House on November 16, 2017, but the JCT macroeconomic analysis was not released until a month later on December 11th. The Tax Cuts and Jobs Act final conference agreement, which passed both Houses of Congress on December 20th, did not have macroeconomic analysis for conference agreement until the day it was signed into law on December 22th. The JCT released macroeconomic effects of the Senate version of the bill on November 30th, two days before the Senate voted on the bill.

Although the scoring requirements mention the use of dynamic methods, they specifically state that the CBO only has to employ them “to the extent practicable.” This legislative language is non-binding on the CBO and allows the CBO to interpret the practicability of dynamic scoring as it sees fit. As it has done on multiple occasions, the CBO can claim lack of time, sufficient staffing, or computing power, among other things, as restrictions on its ability to include macro-dynamic effects in its cost estimates before the bills are brought for a vote on the floor. The scoring rules are also not legally binding since they are simply part of a resolution of the House. The House can and does waive these rules often at their discretion. The 2016 Budget Resolution with these scoring requirements was a joint resolution passed by both Houses but specifically states that they would just be used for informational uses in the Senate. These resolutions are not signed as law and, therefore, are not completely binding on the CBO or Congress.

Policy Recommendations

Considering these factors, the most effective way to improving the accuracy of CBO scoring estimates would be to change the scoring requirements that constrain its scoring methodology. First, Congress should amend the Budget Act to increase the threshold for firing the Director of

the CBO. Instead of a requirement of simply a resolution of one House of Congress, Congress should require a joint resolution with a two-thirds majority vote. This would keep control in Congress, since the purpose of the CBO is to aid Congressional members in economic predictions. Congress could still fire an ill-performing or biased director, but they would have less power over the Director's career to ensure the Director would not have the incentive to sway his decisions in a biased manner to simply please one political party or the leadership of one House to keep his employment.

Congress should also amend Section 257 of the Balanced Budget and Emergency Deficit Control Act of 1985 to change how entitlements are included in the CBO baseline. Currently, entitlements as mandatory spending that spend \$50 million or more must be assumed in the baseline to not expire regardless of whether the funding source for the entitlement is depleted or whether the entitlement has been appropriated for the year. Unlike mandatory spending, discretionary spending and tax revenue is treated as temporary in the baseline. Discretionary funds are not included in the baseline if they have not been appropriated and a tax cut is not assumed to persist if legislative authority for the tax cut is temporary. This difference does not allow for a neutral baseline measurement. Instead, it favors entitlement spending, like Social Security and Medicare, in bills compared to tax cuts or discretionary spending since a consistent level entitlement spending does not appear as a cost in a CBO score since the entitlements are already included in the baseline measurement. For example, CLASS, an entitlement program, would be favorably scored as part of future baseline measures since it must be assumed to be appropriated for. The scoring of an entitlement program, like the way CLASS was scored, could front-load revenue in the 10-year budget window to make the score look favorable and then continue to be appropriated for despite an increase in deficits, because it appears costless in

baseline measurements. This scoring measure increases the ability for mandatory spending to drive larger budget deficits and for the Congressional members to do more mandatory spending outside the appropriations process instead of discretionary spending, since it will be more favorably scored in the future.

In an effort to increase transparency and replicability by outside sources, the CBO should also separate portions of bills to a greater extent and give each source of revenue or spending outlays a separate line item in the score. For example, in the cost estimates for the ACA, Medicaid and the Children's Health Insurance Program (CHIP) were combined in a line item for their costs and participation rates. This makes it difficult to understand cost and projections. The breakdown of the revenues and spending outlays are often more detailed in the initial cost estimates but then are consolidated as estimates are updated.

Congress should also put more binding requirements on the CBO and JCT's use of dynamic scoring in House and Senate rules. To effectively aid Congress in understanding the total effects of a piece of legislation, members need these macroeconomic effects before they vote on the bills. Since the implementation of these methods is difficult and time-consuming, Congress should start by requiring the CBO and JCT to submit a score including macroeconomic effects for pieces of designated as "major" legislation, or causes a gross budgetary effect of 0.25 of GDP or greater in any year over the next ten years. Congress should require any bill or joint resolution designated as "major" legislation to require the dynamic score to be produced by the CBO and JCT before the bill can proceed to the House or Senate floor for a vote. Although the House rules direct the CBO to produce scores on any "major legislation," none of these rules are legally binding and are often ignored. This change would allow Congress and the public to understand the possible effects of any major bill they are voting on. I also argue that this change

in scoring would have more measurable effects on scoring accuracy, since the changes would be required by law, instead of being effectively suggestions.

Finally, my advice to the CBO would be to focus more on the actual text of the bill in crafting assumptions and less on the legislative intent and interpretations made by the office or committee that is crafting the bill. Although offices will have positive views of the bill they are sponsoring, that does not mean the true interpretation of the text is quite as positive. I would encourage the CBO to cite reasons for all assumptions made for a score and to stray from listing an assumption made at the request of a certain member or committee without further explanation.

In conclusion, I find that the implementation of the new scoring guidelines that implement macro-dynamic analysis do not address the main reasons for errors in scoring from the ACA. The majority of the differences in the CBO's score and the actual outcomes of the bill years later were due to components of the bill not being implemented as originally written, to scoring requirements restricting how the CBO must score legislation, and to overly optimistic assumptions compared to outside sources. I contend that although the quality and accuracy of the CBO's analyses could be improved by the implementation of macro-dynamic analysis, the additional changes in the scoring requirements that I outlined are necessary to generate better budgetary and policy predictions.

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