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Dynamic Scoring in the Congressional Budget Process

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SUMMARY

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Dynamic Scoring in the Congressional Budget Process

When Congress considers legislation, it takes into account the proposal's potential budgetary effects. Although this information may come from numerous sources, Congress generally relies on estimates provided by the Congressional Budget Office (CBO) and the Joint Committee on Taxation (JCT) when determining whether legislation complies with congressional budgetary rules.

Generally, CBO and JCT estimates include projections of the budgetary effects that would result from proposed policy changes, and incorporate anticipated individual behavioral responses to the policy. The estimates do not typically include the macroeconomic effects of those individual behavioral responses that would alter gross domestic product (GDP).

In recent decades, however, Congress has sometimes required that JCT and CBO provide estimates that incorporate such macroeconomic effects (effects on overall economic output—GDP). These estimates are often referred to as *dynamic estimates* or *dynamic scores*.

Proponents of dynamic estimates have argued that such estimates provide a more accurate assessment of budgetary impact than conventional scoring, and that they can improve Congress's ability to compare competing policy proposals. Proponents argue that dynamic estimates are important for the sake of consistency, and that by not including dynamic effects, the legislative process is biased against policy proposals designed to encourage productive economic activity. Opponents of dynamic estimates argue that estimates of macroeconomic feedback effects are too uncertain to be relied upon as accurate projections of budgetary outcomes. Opponents of dynamic estimates have stated that, with assumptions about the behavioral responses that determine macroeconomic feedback being so uncertain, there is consistency in assuming, for all legislative proposals, that GDP remains the same, regardless of changes in tax or spending policy.

Between 1997 and 2018, congressional rules existed that required JCT or CBO to provide dynamic estimates under certain circumstances. These congressional rules and requirements varied, sometimes permitting the creation of dynamic estimates, and sometimes requiring it. During this period, some dynamic estimates provided a range of potential budgetary outcomes, while some included a *point estimate*. During this period, dynamic estimates were used only for informational purposes, as opposed to being used to determine whether Congress was complying with its budgetary rules. In some cases, published estimates showed wide variation in estimated results depending on the model type and assumptions.

While committees and Members continue to have the ability to request that CBO or JCT provide dynamic estimates for certain policies or legislative proposals, there are currently no explicit congressional rules or requirements that pertain specifically to the preparation or use of such estimates. If Congress were to reinstitute explicit rules related to dynamic estimates, it may choose to consider many facets of such a potential rule, such as whether a threshold should exist for the creation of such estimates (i.e., should such estimates be provided only for "major legislation"); whether dynamic estimates should be provided for spending as well as revenue proposals; what types of information should be included in such estimates; whether dynamic estimates should be used only for informational purposes, or also for enforcement purposes; and whether additional resources ought to be provided to CBO and JCT so that they might develop greater capacity for providing dynamic estimates.

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Introduction

When Congress considers legislation, it takes into account the proposal's potential budgetary effects. This helps Members to weigh the legislation's merits, and to consider whether it complies with the budgetary rules that Congress has created for itself.

While information on the potential budgetary effects of legislation may come from numerous sources, the authority to determine whether legislation complies with congressional budgetary rules is given to the House and Senate Budget Committees.[1] In this capacity, the budget committees generally rely on estimates provided by the Congressional Budget Office (CBO) and the Joint Committee on Taxation (JCT).[2]

As described in the following section, cost estimates provided by CBO and JCT are guided by certain requirements that Congress has articulated in different forms. These requirements are not completely prescriptive, however, and as a result both CBO and JCT adopt practices and conventions that guide the creation of cost estimates.[3] Generally, CBO and JCT estimates include projections of the budgetary effects that would result from a proposed policy and incorporate anticipated individual behavioral responses to the policy. The estimates do not typically include the macroeconomic effects—effects on the overall size of the economy—of those individual behavioral responses.[4] Congress has sometimes required that JCT and CBO provide estimates that incorporate such macroeconomic effects. These estimates are often referred to as *dynamic estimates* or *dynamic scores*.

This report provides information on the authorities and requirements under which cost estimates are prepared, as well as a summary of the debate surrounding dynamic cost estimates, and previous rules and requirements related to dynamic estimates. Currently, no congressional rules explicitly require dynamic estimates, and Congress may examine what

Conventional estimates generally exclude macroeconomic effects

If legislation reduced taxes on wages, for example, a conventional estimate would likely calculate the cost of the legislation based on the amount of wages and the tax rate reduction. Such a conventional estimate would not include the effects on revenues if that change increased the amount of hours worked, which in turn would increase taxable income, and provide an offsetting tax increase that would reduce the conventional cost of the change.

[1] Section 312, Congressional Budget Act, as amended, P.L. 93-344 (CBA), titled, *Determinations and Points of Order*, states that for the purposes of enforcing budgetary rules, levels of spending and revenues "shall be determined on the basis of estimates made by the Committee on the Budget of the House of Representatives or the Senate, as applicable." House Rule XXIX, clause 4 clarifies that such determinations may be provided by the *chair* of the House Budget Committee. This provision was added to House Rules by H.Res. 5 (112th Congress).

[2] Such estimates include information on the legislative proposal's projected budgetary effects, such as spending, revenue, and the deficit/surplus. CBO was established in 1974 under Title II of the CBA, JCT was established under the United States Revenue Act of 1926 and is governed by provisions in 26 U.S.C. Subtitle G. Additional information on CBO can be found at https://www.cbo.gov/about/overview. Additional information about JCT can be found at https://www.jct.gov/about-us/overview.html.

[3] For example, former CBO Director Douglas Elmendorf, in a paper written shortly after his tenure at CBO, stated that the exclusion of macroeconomic effects within the cost estimates provided by CBO and JCT is "long-standing convention." Douglas W. Elmendorf, *"Dynamic Scoring": Why and How to Include Macroeconomic Effects in Budget Estimates for Legislative Proposals*, Brookings Institution, Fall 2015, p. 1. (Hereinafter, "Elmendorf.")

[4] In addition to dynamic estimates expressly requested or required by Congress, a limited number of "conventional" cost estimates have incorporated macroeconomic effects. For example, estimates for comprehensive immigration reform legislation included the effects of an increased labor force, because "assuming that those bills would have had no effect on overall output would have ignored one of the primary effects of the bills and distorted those estimates too severely." Elmendorf, p. 96. For a list of such estimates, see **Appendix**.

rules changes, if any, are needed in the area of dynamic estimates. This report, therefore, includes information on options for the creation of dynamic scoring rules, and general considerations for Congress related to dynamic estimates.

Authorities and Requirements Under Which Cost Estimates Are Prepared

Cost estimates provided by CBO and JCT are guided, in part, by certain requirements that have been articulated by Congress in different forms, as described below.

The Congressional Budget Act

The Congressional Budget Act (CBA) requires that CBO prepare cost estimates for all bills reported from committee, "to the extent practicable."[5] The CBA also requires that (1) CBO rely on estimates provided by JCT for revenue legislation[6] and (2) CBO include in its estimates "the costs which would be incurred" in carrying out the legislation in the fiscal year in which the legislation is to become effective, as well as the four following years, together with "the basis for such estimate."[7]

The Baseline

When conducting cost estimates, CBO and JCT measure the budgetary effect of a legislative proposal in relation to projections of revenue and spending levels that are assumed to occur under current law, typically referred to as *baseline* levels. This means that the way a policy is reflected in the baseline will affect how CBO and JCT estimate a related policy.

In calculating the baseline, CBO makes its own technical and economic assumptions, but the law generally requires that CBO assume that spending and revenue policies continue or expire based on what is currently slated to occur in statute.[8] For example, CBO's baseline must assume that temporary tax cuts such as those enacted in 2017 actually do expire.[9] The baseline, therefore, shows an increase in the level of revenue expected to be collected after the tax cut provisions expire in law. Therefore, a legislative proposal to continue those tax cut provisions would be scored as increasing the deficit.

Although baseline calculations generally require that direct (mandatory) spending program levels reflect what is scheduled to occur in law, important exceptions exist for many direct spending

[5] Congressional Budget Act, as amended, P.L. 93-344 (CBA), Section 402. The requirement excludes bills reported from the House and Senate Committees on Appropriations.

[6] Section 402, CBA, Section 201(f) states, "Revenue Estimates: For the purposes of revenue legislation which is income, estate and gift, excise, and payroll taxes (i.e., Social Security), considered or enacted in any session of Congress, the Congressional Budget Office shall use exclusively during that session of Congress revenue estimates provided to it by the Joint Committee on Taxation."

[7] Section 402, CBA also requires "a comparison of the estimates of costs described in the estimate with any available estimates of costs made by such committee or by any Federal agency, and a description of each method."

[8] Statutory requirements related to the calculation of the baseline can be found in The Balanced Budget and Emergency Deficit Control Act of 1985, as amended in Section 257, 2 U.S.C. 907. CBO's baseline is called the Budget and Economic Outlook.

[9] For more information, see CRS Report R45092, *The 2017 Tax Revision (P.L. 115-97): Comparison to 2017 Tax Law*, coordinated by Molly F. Sherlock and Donald J. Marples.

programs. In particular, any program with estimated current year outlays greater than $50 million is assumed to continue to operate under the terms of the law at the time of its expiration.[10] This means that some programs that are slated in law to expire are assumed to continue in the baseline. A legislative proposal that sought to merely continue those expired programs would therefore *not* be scored as new spending.

Scorekeeping Guidelines

When creating cost estimates, CBO adheres to scorekeeping guidelines, which are "specific rules for determining the budgetary effects of legislation."[11] These general guidelines are used by the scorekeepers—the House and Senate Budget Committees, CBO, and the Office of Management and Budget (OMB)—to ensure that each group uses consistent and established practices. The 17 scorekeeping guidelines include general principles, such as a requirement that mandatory spending provisions included in appropriations bills be counted against the Appropriations Committee spending allocation, and direction on how asset sales are to be scored.[12] The guidelines have been revised and expanded over the years, and any changes or additions to the scorekeeping guidelines are first approved by each of the scorekeepers.[13]

Chamber Rules and the Budget Resolution

Congress sometimes directs the creation and content of cost estimates through chamber rules and provisions contained in budget resolutions. As described subsequently, House rules have sometimes explicitly required CBO and JCT to include in cost estimates information on a policy proposal's projected macroeconomic feedback effects. Similarly, Congress has also used the budget resolution to provide direction on how a policy ought to be estimated.[14] For example, budget resolutions have included provisions requiring that transfers from the Treasury's general fund to the Highway Trust Fund be counted as new spending.[15] Similarly, budget resolutions have stated that certain policies cannot be counted as offsets, such as Federal Reserve System surpluses transferred to the Treasury's general fund, as well as increases or extensions of Freddie Mac and Fannie Mae guarantee fees.[16]

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[10] Section 257(b), BBEDCA.

[11] These scorekeeping guidelines were originally included in the joint statement of managers that accompanied the conference report on the Balanced Budget Act of 1997 (H.Rept. 105-217). U.S. Congress, House, *A Compendium of Laws and Rules of the Congressional Budget Process*, 114th Cong., August 2015, "Introduction," p. 2. For Scorekeeping Guidelines, see p. 601, or OMB's Circular A-11, Appendix A, available at https://www.whitehouse.gov/omb/information-for-agencies/circulars/.

[12] Scorekeeping guidelines 3 and 15, respectively.

[13] According to the House Budget Committee, U.S. Congress, House, *A Compendium of Laws and Rules of the Congressional Budget Process*, 114th Cong., August 2015, "Introduction," p. 2, and the first paragraph of the Scorekeeping Guidelines, p. 603.

[14] CBA, Section 301(b)(4) states that the budget resolution may include "other matters, and require such other procedures, relating to the budget, as may be appropriate to carry out the purposes of" the CBA.

[15] For example, see the budget resolution for FY2016 (S.Con.Res. 11, 114th Congress, Section 3302) and the budget resolution for FY2018 (H.Con.Res. 71, 115th Congress, Section 5110).

[16] For example, see the budget resolution for FY2018 (H.Con.Res. 71, 115th Congress, Sections 5111 and 5112, respectively).

The Budget Committees and Tax Committees

Congressional committees may also shape the content or creation of cost estimates. The House and Senate Budget Committees have jurisdiction over CBO, and the CBA specifies that CBO's "primary duty and function" is to assist the budget committees.[17] Oversight of CBO, as well as the creation and content of cost estimates is, therefore, under the jurisdiction of the House and Senate Budget Committees, and the budget committees provide related guidance to CBO. For the JCT, the creation and content of its estimates may be shaped by the committee itself, or by guidance or assumptions of the tax committees—the House Committee on Ways and Means and the Senate Committee on Finance.

Overview of Dynamic Estimating

Generally, CBO and JCT estimates include projections of the budgetary effects that would result from proposed policy changes, and incorporate anticipated individual behavioral responses to the policy. The estimates do not typically include the macroeconomic effects of those individual behavioral responses (such as changes in labor supply and the capital stock) that would alter GDP.[18] For example, if an increase in the corporate tax rate caused corporations to use more debt, conventional estimates would take into account the loss of revenue since the returns from debt are taxed more lightly than the returns from equity, and this loss in revenue would offset the revenue gain calculated by multiplying the change in the tax rate by corporate income. The conventional estimate would not take into account the lost revenue from a reduction in income if the rate increase caused a decline in investment, which affects production. These estimates without macroeconomic effects are sometimes imprecisely referred to as "static," but are referred to in this report as conventional estimates because they take into account many behavioral responses.[19]

In contrast, a dynamic score aims to account for legislation's macroeconomic effect, by incorporating changes to (1) aggregate demand for goods and services to increase output in an underemployed economy and/or (2) aggregate supply of goods and services (*supply-side effects*) to increase potential output. For example, dynamic scoring can include fiscal stimulus effects that increase aggregate demand. These effects occur when the economy is underemployed (for example, during and after a recession), and increased spending either by the government or from taxpayers after a tax cut can expand the economy through multiplier effects and cause output to move closer to potential output. These effects are referred to subsequently as *demand-side effects*. Supply-side effects occur if potential output is altered due to changes in investment or savings that increase the capital stock, labor supply, or productivity. The crowding-out (or -in) effect occurs when an increase (or decrease) in the deficit reduces (or increases) funds available for private investment and hence reduces (or increases) the capital stock.

[17] CBA, Section 202(a).

[18] In addition to dynamic estimates expressly requested or required by Congress, a limited number of "conventional" cost estimates have incorporated macroeconomic effects. For example, certain estimates for comprehensive immigration reform legislation included the effects of an increased labor force, because "assuming that those bills would have had no effect on overall output would have ignored one of the primary effects of the bills and distorted those estimates too severely." Elmendorf, p. 96. Estimates have not included other direct macroeconomic effects, such as the effect on interest rates from increased government borrowing. For a list of such estimates, see **Appendix**.

[19] Estimates of tax and spending policies take into account behavioral effects, such as changes in spending due to excise taxes and their effects on prices or changes in realizations as a result of changes in capital gains taxes.

Increased Interest in Dynamic Estimating

Congressional interest in dynamic estimating has increased in recent decades. This interest may be attributed to the increase in the number of House and Senate rules restricting budgetary legislation.[20] Because bills and resolutions are expected to comply with these congressional rules, estimates of a measure's fiscal impact arguably become more important. Interest in dynamic scoring is also likely related to recent advancements in economic analysis and economic modeling that make estimating macroeconomic feedback effects possible.

Views on Dynamic Estimating

Both proponents and opponents of dynamic estimating point to accuracy and consistency as their primary objectives. Some have suggested that dynamic scoring is useful, but only under certain circumstances.

Arguments for Dynamic Estimating

Arguments in favor of dynamic scoring include the view that dynamic scoring provides a more accurate assessment of budgetary impact than conventional scoring, particularly for some types of legislative proposals, and that conventional estimating methods produce a projection that does not reflect the actual expected impact on revenues. Under this argument, dynamic scoring makes use of all available information, and excluding macroeconomic feedback effects "amounts to throwing away valuable information."[21] It has also been argued that including macroeconomic effects can improve Congress's ability to compare competing policy proposals.[22]

Arguments in favor of dynamic scoring state that these estimates are required for the sake of consistency, especially for large legislative packages that would likely affect the economy. As stated above, a legislative proposal's budgetary impact is measured against a baseline, and that baseline takes into account macroeconomic assumptions. It is, therefore, argued that certain legislative proposals should *also* take into account economic assumptions. If such legislation were to be enacted into law, CBO would then build that policy into its baseline, and would have to make assumptions about the macroeconomic feedback effects that would be expected to occur under those policies. It is only consistent, the argument goes, to use macroeconomic feedback effects in the initial estimate of the legislation as well.[23]

Advocates for dynamic scoring also state that not using a dynamic approach to measure the impact of policy changes biases the legislative process against policy proposals that are designed to encourage productive economic activity.[24] Some have argued that under conventional

[20] Many congressional rules and restrictions were first established by the Congressional Budget Act of 1974. Budgetary restrictions were also included in the Balanced Budget and Emergency Deficit Control Act of 1985 (Gramm-Rudman-Hollings; P.L. 99-177), the Budget Enforcement Act of 1990 (BEA; P.L. 101-508), the Budget Enforcement Act of 1997 (BEA of 1997; P.L. 105-33), the Statutory Pay-As-You-Go Act of 2010 (Statutory PAYGO Act; P.L. 111-139), and the Budget Control Act of 2011 (BCA; P.L. 112-25).

[21] Alan J. Auerbach, "Dynamic Scoring: An Introduction to the Issues," University of California, Berkeley, Department of Economics, 2005, p. 2. (Hereinafter, "Auerbach.")

[22] Donald B. Marron, *Thoughts on Dynamic Scoring of Fiscal Policies*, Tax Policy Center, June 2016, p. 1. (Hereinafter, "Marron.")

[23] CBO also routinely conducts dynamic analysis for proposals that are not necessarily enacted into law (such as proposed budget paths or the President's budget), alternative fiscal scenarios (for example, in the Long-Term Budget Outlook reports), and various illustrative spending and revenue policies.

[24] Dita Aisyah, "Four Reasons Why We Need Dynamic Scoring," Tax Foundation, August 5, 2015,

estimating methods, the impact of a cut in the marginal tax rates, for example, is viewed (through the lens of budgetary outcomes) less favorably than it should be.[25]

It has also been argued that, methodologically, the production of quality dynamic estimates is now possible due to technical advances in modeling and analysis, and an increase in evidence showing public responses to policy changes.[26] Some have pointed out that both CBO and JCT are capable of producing dynamic estimates,[27] and JCT staff have stated that, with regard to macroeconomic estimates, "we think we have been producing reasonable results for over a decade (though we welcome comments and discussion)."[28]

Arguments Against Dynamic Estimating

Likewise, arguments against dynamic estimates also point to concerns about accuracy and consistency. Those who oppose the use of dynamic scoring argue that projected macroeconomic feedback effects are too uncertain to be relied upon as accurate projections of budgetary outcomes.

Projecting macroeconomic feedback effects requires economic modeling, and it has been said that "because reasonable people can disagree about what model, and what parameters of that model, are best, the results from dynamic scoring will always be controversial."[29] Previous macroeconomic analyses by CBO and JCT have yielded a range of estimates depending on what type of model is used and the underlying behavioral assumptions in each model.[30]

With assumptions about the behavioral responses that determine macroeconomic feedback being so uncertain, it has been argued that there is consistency in assuming, for all legislative proposals, that GDP remains the same, regardless of changes in tax or spending policy.[31]

Arguments against dynamic scoring often point to potential problems with cost estimating in general, but note that under dynamic scoring these vulnerabilities may be exacerbated. For example, as mentioned above, all cost estimates are inherently uncertain. Dynamic estimates are always subject to *more* uncertainty, even for relatively simple tax changes, because of the uncertainty of taxpayer responses (such as consumer spending and labor supply). In contrast,

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https://taxfoundation.org/four-reasons-why-we-need-dynamic-scoring/; and Zachary Karabell, "A Dynamic World Demands Dynamic Scoring," *Politico Magazine*, January 14, 2015, https://www.politico.com/magazine/story/2015/01/dynamic-scoring-114237.

[25] Auerbach.

[26] Auerbach.

[27] Elmendorf; Marron.

[28] U.S. Congress, Joint Committee on Taxation, *Macroeconomic Analysis at the Joint Committee on Taxation and the Mechanics of its Implementation, Outline of Presentation of the Joint Committee Staff at the Brookings Institution Program "Dynamic Scoring: Now What?,"* prepared by the staff of the Joint Committee on Taxation, 114th Cong., January 26, 2015, available at https://www.jct.gov/publications.html?func=startdown&id=4687.

[29] N. Gregory Mankiw, "Dynamic Scoring in Congress Is Defensible but Slippery," *New York Times*, February 28, 2015, https://www.nytimes.com/2015/03/01/upshot/a-slippery-new-rule-for-gauging-fiscal-policy.html. (Hereinafter, "Mankiw.")

[30] See the discussion of models and estimates in CRS Report R43381, *Dynamic Scoring for Tax Legislation: A Review of Models*, by Jane G. Gravelle. For example, in estimating the effects of the Tax Reform Act of 2014, the JCT used two different types of models and different assumptions within those models that produced a range of estimates from 0.1% to 1.6%, depending on model and assumptions within the model. See Joint Committee on Taxation, *Macroeconomic Analysis of the "Tax Reform Act of 2014,"* JCS-22-14, February 26, 2014, at https://www.jct.gov/publications.html?func=startdown&id=4564.

[31] Mankiw.

many conventional estimates (such as the effect of rate changes in the tax code or changes to exemptions and deductions) may be estimated quite precisely because data are readily available on income levels and family characteristics.[32]

Similarly, while cost estimates generally might always have the potential to be perceived as subject to manipulation by political forces, it has been argued that this possibility is exacerbated with dynamic scoring, which might damage the budget process's credibility.[33]

Arguments for Dynamic Estimating Under Certain Circumstances

Some have argued that dynamic estimates would be useful for Congress but only in certain situations. It has been argued that dynamic estimates should be provided by CBO and JCT but only for "major proposals" such as those that have a large estimated budgetary impact or those designated as "major" by either majority or minority committee and/or chamber leadership. (Recent dynamic scoring rules [discussed below] used a similar threshold.) It has been stated that neither CBO nor JCT have sufficient time or staff to carefully estimate the macroeconomic effects of *every* proposal for which they must conduct an estimate.[34] (To this end, it has also been argued that dynamic estimates should be conducted only when CBO and JCT have the time and tools necessary to conduct the analysis.)

Further, it has been stated that dynamic estimates should be conducted for spending as well as revenue proposals because each have the potential to produce notable macroeconomic effects.[35] (As stated below, in some years dynamic estimates were required *only* for revenue legislation.) It has also been argued that dynamic estimates should be provided for discretionary spending as well as direct/mandatory spending.[36] As stated below, even when dynamic scoring requirements applied to spending as well as revenue, these rules excluded discretionary spending legislation (i.e., appropriations legislation).

Previous Dynamic Scoring Rules and Requirements

While committees and Members continue to have the ability to request that CBO or JCT provide dynamic estimates for certain policies or legislative proposals, for the first time in decades there are no explicit congressional rules or requirements that pertain specifically to the preparation or use of such estimates.

As described below, rules related to dynamic estimates have varied over the years.

1997-2002

In January 1997, the House first adopted a rule that explicitly mentioned dynamic estimates. It stated that a dynamic estimate provided by JCT could be included in the committee report accompanying "major tax legislation" (as designated by the House majority leader), but that the

[32] For some specific proposals, conventional estimates are quite uncertain, such as the effect of changing capital gains tax rates (because of uncertainty about realization responses) or when a new feature is introduced and there is not previous data (such as the effect of the repatriation holiday).

[33] Paul N. Van de Water and Chye-Ching Huang, *Budget and Tax Plans Should Not Rely on "Dynamic Scoring,"* Center on Budget and Policy Priorities, November 17, 2014, https://www.cbpp.org/research/budget-and-tax-plans-should-not-rely-on-dynamic-scoring.

[34] Elmendorf, p. 93.

[35] Elmendorf; Marron.

[36] Elmendorf, p. 93.

estimate could be used "for informational purposes only." The rule, which was in effect through 2002, defined a dynamic estimate as "a projection based in any part on assumptions concerning probable effects of macroeconomic feedback" and required that the estimate include a statement identifying all such assumptions.[37]

When the new rule was adopted in January 1997, JCT staff hosted a symposium entitled "Modeling the Macroeconomic Consequences of Tax Policy." According to JCT

> This symposium presented the results of a year-long modeling experiment by economists noted for their work in developing models of the U.S. economy. The purpose of this experiment was to explore the predictions of a variety of models regarding the macroeconomic feedback effects of major changes in the U.S. tax code with a focus on evaluating the feasibility of using these types of results to enhance the U.S. budgeting process.[38]

2003-2014

In January 2003, the House replaced its previous dynamic scoring rule with a more extensive rule, which remained in effect through 2014.[39] Whereas the previous rule had *permitted* a dynamic estimate to be included in a committee report, the new House rule *required* it. Further, whereas the previous rule had applied only to bills designated as "major tax legislation," the new rule applied to *any bill* reported by the House Committee on Ways and Means that proposed to amend the Internal Revenue Code. The new rule also omitted the previous provision that explicitly required the estimate be "used for informational purposes only."

The new rule no longer used the term "dynamic estimate" but instead used the term "macroeconomic impact analysis," which the rule defined as an estimate provided by JCT "of the changes in economic output, employment, capital stock, and tax revenues expected to result from enactment of the proposal." The estimate was required to identify critical assumptions and the source of data underlying that estimate.

Around the time of the rule's adoption in 2003, the JCT released a report providing an overview of the joint committee's efforts to model macroeconomic effects of proposed tax legislation.[40]

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[37] This rule was in effect from 1997 to 2002 (105th Congress-107th Congress). (It was originally House Rule XIII clause 7(e) [105th Congress] but was recodified as House Rule XIII clause 3(h)(2) in the 106th Congress.) The rule stated that the committee report from the House Committee on Ways and Means accompanying "major tax legislation" (as designated by the majority leader after consultation with the minority leader) could include a dynamic estimate of changes in federal revenues expected to result from enactment of the legislation. The rules stated that JCT should render a dynamic estimate "only in response to a timely request from the Chairman of the Committee on Ways and Means (after consultation with the ranking minority member of the committee)."

[38] U.S. Congress, Joint Committee on Taxation, *Joint Committee on Taxation Tax Modeling Project and 1997 Tax Symposium Papers*, committee print, 105th Cong., November 20, 1997. This project followed increased interest in macroeconomic modeling that included congressional hearings and the creation of a revenue-estimating advisory board. For more information on this history, and the history of macroeconomic analysis at the JCT, see Randall D. Weiss and James W. Wetzler, "The Evolution of Economics at the joint Committee on Taxation, Part 2," Tax Notes, May 23, 2016.

[39] Rule XIII, clause 3(h)(2) (108th Congress-113th Congress). The rule stated that it was not in order to consider in the House a bill or joint resolution reported by the Committee on Ways and Means that proposed to amend the Internal Revenue Code of 1986 unless (1) the report included a macroeconomic impact analysis, (2) the report included a statement from JCT explaining why a macroeconomic impact analysis was not calculable, or (3) the chair of the Committee on Ways and Means caused a macroeconomic impact analysis to be printed in the *Congressional Record* before consideration of the legislation.

[40] U.S. Congress, Joint, *Overview of the Work of the Staff of the Joint Committee on Taxation to Model the Macroeconomic Effects of Proposed Tax Legislation to Comply with House Rules XII 3(h)(2)*, prepared by the staff of

While varying in length and detail, the macroeconomic analyses provided by JCT during this period (2003-2014) included information on the expected macroeconomic effects (if any) of the proposed legislation, provided general conclusions, and sometimes provided a range of potential budgetary effects using different models and different assumptions within models. The analyses did not include a specific dollar amount or *point estimate*. These analyses also reported details of the effects on different aspects of the economy (such as labor supply, output, and capital stock). In addition, the estimates often referenced the model(s) used for the analysis.

During this time, the JCT used four different types of models. Crucially, all of these models incorporated the impact of supply-side effects in their dynamic estimates. Only the MEG and GI model also incorporated demand-side effects (for a brief discussion of these effects, see "Overview of Dynamic Estimating"). The models are briefly described below:

1. **MEG:** a macroeconomic growth (MEG) model that incorporates aggregate demand effects similar to those in most economic forecasting models and includes labor and savings responses. (This model falls into a class of steady state growth models called Solow models, discussed below.)
2. **OLG:** an overlapping generations (OLG) life-cycle model that assumes that generations of individuals optimize choices of consumption and leisure over a lifetime and cannot include demand-side effects.
3. **GI:** a Global Insight (GI) private econometric forecasting model that captures demand-side effects.
4. **DSGE:** a domestic stochastic general equilibrium (DSGE) model that assumes that individuals optimize over infinite lifetimes and often does not, without modification, capture aggregate demand effects to decrease unemployment.[41]

In the past, the JCT also had different behavioral responses within models (e.g., a high and low labor supply response in MEG).

During this period, the JCT prepared five published macroeconomic estimates of legislative proposals: one (in 2003, for the Jobs and Growth Tax Relief Reconciliation Act, P.L. 108-27) that used MEG, GI, and OLG; two that used MEG only (the 2009 economic stimulus legislation and the 2009 Affordable Care Act); and two that used MEG and OLG (a bill extending bonus depreciation in 2014 and the Tax Reform Act of 2014).[42] Several bills were examined but were too small for a macroeconomic analysis. The GI model was dropped after 2003, and the DSGE model was introduced in 2006. That model did not allow unemployment. None of the published analyses of legislation used the DSGE model. The JCT also provided illustrative analysis for different types of proposals on two occasions: to compare individual rate cuts, corporate rate cuts, and increases in the personal exemption in 2005 and to examine a revenue-neutral tax cut that

the Joint Committee on Taxation, 108th Cong., December 22, 2003, available at https://www.jct.gov/publications.html?func=startdown&id=2940.

[41] See Joint Committee on Taxation, *Overview of Joint Committee Macroeconomic Modeling*, April 23, 2018, at https://www.jct.gov/publications.html?func=startdown&id=5092. Also, see CRS Report R43381, *Dynamic Scoring for Tax Legislation: A Review of Models*, by Jane G. Gravelle for a more detailed discussion of the types of models and effects. The DSGE model is also a form of the Ramsey or infinite horizon model (sometimes also called a real business cycle model) but is modified by having some agents in the model liquidity constrained and unable to lend or borrow, uncertainty, and by having sticky prices. Without certain modifications, Ramsey type models cannot be affected by demand-side effects. The current OLG model does not have an infinite horizon but a lifetime one, but has not been modified to permit demand-side effects.

[42] These analyses can be found at Joint Committee on Taxation, *Overview of Joint Committee Macroeconomic Modeling*, April 23, 2018, at https://www.jct.gov/publications.html?func=startdown&id=5092.

broadened the individual income tax base and lowered the rate in 2006. The first analysis used MEG and the second used the MEG, OLG, and DSGE models.

2015-2018

During this period, dynamic estimates were required to be conducted for revenue and mandatory spending legislation that met the threshold of "major legislation" under both a House rule and budget resolutions.

House Rule

In 2015, the House replaced its former rule with House Rule XIII, clause 8. The new rule, which was in effect through 2018, expanded the type of legislation for which dynamic estimates were to be conducted to include not just revenue proposals, but also mandatory spending proposals.[43] This meant that the rule now required dynamic estimates from CBO as well as JCT, but only for "major legislation," which was defined as (1) legislation that would be projected (in a conventional cost estimate) to cause an annual gross budgetary effect of at least 0.25% of projected U.S. GDP,[44] (2) mandatory spending legislation designated as major legislation by the chair of the House Budget Committee, or (3) revenue legislation designated as major legislation by the chair or vice chair of the JCT. Although not explicitly stated in the new rule, the rules change resulted in dynamic estimates, for the first time, including a point estimate (i.e., a specific dollar amount) as opposed to a range of potential budgetary outcomes.

Under this rule, the estimates would incorporate the budgetary effects of changes in economic output, employment, capital stock, and other macroeconomic variables resulting from such legislation. The estimate was, to the extent practicable, to include a qualitative assessment of the long-term budgetary effects and macroeconomic variables of such legislation, and to identify critical assumptions and the source of data underlying the estimate.[45]

Budget Resolutions

During this period, Congress also used the budget resolution to direct CBO and JCT to provide dynamic estimates. The budget resolutions agreed to by both the House and Senate for fiscal years 2016 and 2018 included provisions that required dynamic estimates in both houses for the 114th and 115th Congresses.[46]

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[43] The rule did not apply to discretionary spending legislation, which is under the jurisdiction of the House and Senate Appropriations Committees.

[44] Specifically, the rule states "any bill or joint resolution for which an estimate is required to be prepared pursuant to section 402 of the Congressional Budget Act of 1974 and that causes a gross budgetary effect (before incorporating macroeconomic effects) in any fiscal year over the years of the most recently agreed to budget resolution on the budget equal to or greater than 0.25 percent of the current projected gross domestic product of the United States for that year." The rule defined budgetary effect as "changes in revenues, outlays, and deficits."

[45] Specifically, the rule states that the estimate requires information on the effects "of such legislation in the 20-fiscal year period beginning after the last fiscal year of the most recently agreed to concurrent resolution on the budget that set forth appropriate levels required by section 301 of the Congressional Budget Act of 1974."

[46] The FY2016 budget resolution, agreed to in May 2015, S.Con.Res. 11 (114th Congress), Section 3112. Honest accounting: cost estimates for major legislation to incorporate macroeconomic effects (applied to both Senate and House); and the FY2018 budget resolution, agreed to in October of 2017, H.Con.Res. 71 (115th Congress), Section 4107. Honest accounting: cost estimates for major legislation to incorporate macroeconomic effects (applied to Senate) and Section 5107. Estimates of macroeconomic effects of major legislation (applied to House).

The requirements included in these provisions were similar to the House rule described above. The dynamic estimates were required to be conducted for revenue and mandatory spending legislation that met the threshold of "major legislation." Major legislation was again described as legislation that would be projected (in a conventional cost estimate) to cause an annual gross budgetary effect of at least 0.25% of projected U.S. GDP, but this version of the rule excluded any legislation that met this criterion as a result of a timing shift.[47] To accommodate the Senate's constitutional authority to approve treaties, the rule expanded the definition of major legislation to include any treaty with an impact of at least $15 billion in that fiscal year. And the definition of major legislation also included any mandatory spending legislation designated as major legislation by the chair of the House or Senate Budget Committee, or revenue legislation designated as major legislation by the chair or vice chair of the JCT.

As with the House rule, these estimates were required to incorporate the budgetary effects of changes in economic output, employment, capital stock, and other macroeconomic variables resulting from such legislation. The estimate was, to the extent practicable, to include a qualitative assessment of the long-term budgetary effects and macroeconomic variables of such legislation, and to identify critical assumptions and the source of data underlying the estimate.[48] For the Senate provision applying to the 115th Congress, the estimates were to include the distributional effects across income categories, to the extent practicable.

Although not explicitly stated in the provisions, the requirements resulted in dynamic estimates, including a point estimate (i.e., a specific dollar amount) as opposed to a range of potential budgetary outcomes. Although the House and Senate Budget Committees might presumably have used such point estimates as the official estimate for the purposes of budget enforcement (under the authority granted by Section 312 of the CBA), the Senate Budget Committee communicated that the dynamic estimates would be used for informational purposes only.[49]

Estimating Practices

Estimates during the 2015-2018 period included a point estimate that provided a conventional estimate and the macroeconomic effects for a 10-year period. The JCT currently uses the three models previously discussed: MEG, OLG, and DSGE. In the past, the JCT also had different

[47] A timing shift was defined as (1) provisions that cause a delay of the date on which outlays flowing from direct spending would otherwise occur from one fiscal year to the next fiscal year, or (2) provisions that cause an acceleration of the date on which revenues would otherwise occur from one fiscal year to the prior fiscal year.

[48] Specifically, the provisions state that the estimate requires information on the effects "of such legislation in the 20-fiscal year period beginning after the last fiscal year of the most recently agreed to concurrent resolution on the budget that set forth appropriate levels required by section 301 of the Congressional Budget Act of 1974."

[49] The Senate Budget Committee communicated that the estimates would be used only for informational purposes in two separate committee prints. First, a committee print for the budget resolution for FY2016, S.Con.Res. 11, states, "Provides Honest Accounting Estimates. The resolution directs CBO to produce, alongside its conventional estimates, cost estimates that incorporate the economic effects of major policy changes. These estimates would serve informational purposes." U.S. Congress, Senate Committee on the Budget, *Concurrent Resolution on the Budget, FY2016*, S.Prt. 114-14, 114th Cong., 1st sess., March 2015, p. 24. Next, a committee print for a budget resolution for FY2018 that was reported from the Senate Budget Committee, S.Con.Res. 25, states "Reactivates Dynamic Scoring Authority. This resolution directs the Congressional Budget Office and the Joint Committee on Taxation to incorporate the budgetary effects of macroeconomic variables when each produces estimates of major legislation. These estimates will be used for informational purposes only. These more accurate assessments will help guide the Senate in its work both as a legislative body and financial steward of the United States. U.S. Congress, Senate Committee on the Budget, *Concurrent resolution on the Budget, Fiscal Year 2018*, S.Prt. 115-19, 115th Cong., 1st sess., October 2017, 115-19, p. 24.

behavioral responses within models (e.g., a high and low labor supply response in MEG).[50] In 2014, JCT had only the MEG and OLG models; the first introduction of the DSGE model in a published estimate for legislation was in 2017. Discussions of the DSGE model in 2018 suggested that it now allowed unemployment. CBO has two models that assume full employment. One is a long-term model that CBO refers to as a "Solow growth model" and the other is a life cycle model. (The Solow growth model is similar to the long-term growth aspects of MEG and the life cycle model is an OLG model. The similarities reflect the way they incorporate behavioral responses.)[51] The Solow model has stronger and weaker labor supply responses and the OLG model has alternative assumptions about how the model was to be closed and whether local or worldwide interest rates predominated. CBO also has a separate short-term model that can capture fiscal stimulus that reduces unemployment, while JCT combines short-term and long-term effects in its MEG and DSGE models.

Beginning in 2003, JCT and CBO presented results from more than one model and with different behavioral assumptions within models.[52] Beginning in 2015, when point estimates were provided, the JCT reported a single estimate that was a weighted average of the various models' point estimates. JCT provided information on the weights used, but did not separately report the different models' point estimates when more than one model was used. Also, in contrast to past informational macroeconomic modeling, there was no reported sensitivity analysis within the models (sensitivity analysis effectively measures how macroeconomic effects may change under different behavioral assumptions, such as how much a change in tax rates affects labor supply). In the four analyses that JCT reported on, in the first two cases (in 2015) only MEG, with the high rather than the low labor response assumption, was used.[53] In the case of the major 2017 tax revision, MEG was weighted at 40%, OLG at 40%, and DSGE at 20%.[54] In the final case, MEG was weighted at 40% and OLG and DSGE were each weighted at 30%.[55] CBO and JCT jointly estimated the effects of some bills associated with repeal of the Affordable Care Act or modification of that act (JCT estimated certain tax provisions and CBO estimated the other

[50] See Joint Committee on Taxation, *Overview of Joint Committee Macroeconomic Modeling*, JCX-33-18, April 23, 2018, https://www.jct.gov/publications.html?func=startdown&id=5092. Also, see CRS Report R43381, *Dynamic Scoring for Tax Legislation: A Review of Models*, by Jane G. Gravelle for a more detailed discussion of the types of models. Additional details in footnote 41.

[51] OLG models incorporate savings and labor supply effects by introducing explicit optimizing functions for allocating consumption and leisure over time that generate, depending on many parameters, labor and savings responses (as does the DSGE model used by JCT). Solow models and the MEG model incorporate behavioral responses for savings and labor supply that reflect direct statistical estimates of these responses.

[52] For the initial analyses, see Joint Committee on Taxation, *Macroeconomic Analysis for the Jobs and Growth Reconciliation Tax Act of 2003*, May 8, 2003, https://www.jct.gov/publications.html?func=startdown&id=1191; and Congressional Budget Office, *How CBO Analyzed the Macroeconomic Effects of the President's Budget*, July 2003, http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/44xx/doc4454/07-28-presidentsbudget.pdf.

[53] Joint Committee on Taxation, *A Report to the Congressional Budget Office of the Macroeconomic Effects of the "Tax Relief Extension Act of 2015," as Ordered to be Reported by the Senate Committee on Finance*, JCX-107-15, August 4, 2015, https://www.jct.gov/publications.html?func=startdown&id=5092; and Joint Committee on Taxation, *A Report to the Congressional Budget Office of the Macroeconomic Effects of* H.R. 2510*, "Bonus Depreciation Modified and made Permanent," As Ordered to be Reported by the House Committee on Ways and Means*, JCS-134-15, October 27, 2015, https://www.jct.gov/publications.html?func=startdown&id=4844.

[54] Joint Committee on Taxation, *Macroeconomic Analysis of the Conference Agreement for* H.R. 1*, The "Tax Cuts and Jobs Act,"* JCX-69-17, December 22, 2017, at https://www.jct.gov/publications.html?func=startdown&id=5055.

[55] Joint Committee on Taxation, Macroeconomic Analysis of H.R. 6760, The "Protecting Family and Small Business Tax Cuts Act of 2018," as Reported by the Committee on Ways and Means, JCX-79-18, September 26, 2018, https://www.jct.gov/publications.html?func=startdown&id=5145.

provisions). JCT used the MEG model and CBO used its Solow model along with its short-term model, each with a single set of labor supply responses.[56]

CBO had been preparing macroeconomic analyses of the President's budget since 2003, reporting the results from multiple models and assumptions. When CBO prepared its standard analysis of the President's budget in 2015 and 2016, the analysis continued to report the results from both models, along with estimates of immigration's effect on productivity, with sensitivity analysis within the models leading to 16 different estimated effects on GDP over 10 years ranging from 0.7% to 2.8%.[57] CBO has not prepared any subsequent macroeconomic analyses of the President's budget.

Considerations for Congress

Currently, no House or Senate rules explicitly require the preparation or use of dynamic estimates, and Congress may choose to examine what rules changes, if any, are needed in the area of dynamic estimates.

While committees and Members continue to have the ability to request that CBO or JCT provide dynamic estimates for certain policies or legislative proposals, at some point Congress may choose to reinstitute explicit rules related to such dynamic estimates. These requirements could be articulated as formal direction from the committees of jurisdiction or leadership to JCT and CBO. Alternatively, as was done previously, these requirements might be included in chamber rules or in budget resolutions, or might be included in a standing order or in statute.

If Congress were to reinstitute explicit rules related to dynamic estimates, it may choose to consider many facets of such potential rules:

- Will there be a threshold for the creation of such estimates? Should the proposal also allow the legislation to be designated as "major" by either majority or minority committee and/or chamber leadership? Should CBO and JCT provide dynamic estimates only for "major proposals," such as those that have a large estimated budgetary impact? If so, what would be the threshold for major? Past rules have used a measure equal to 0.25% of GDP. Would the effect on GDP be measured by the entire legislation, or would it be triggered by an individual provision or group of provisions (such as revenue raisers or revenue losers in a tax bill) that met the threshold? The latter approach would capture revenue-neutral legislation that nevertheless made significant changes that could affect GDP.
- Should rules for dynamic estimates apply to spending as well as revenue proposals since both have the potential to cause notable macroeconomic effects?[58] And if the rule applies to spending, would it apply to discretionary spending that varies from the baseline as well as direct/mandatory spending?
- What information should be included in such estimates? Practices prior to 2015 provided insight into how sensitive the results were to choice of model and

[56] Congressional Budget Office, *Budgetary and Economic Effects of Repealing the Affordable Care Act*, June 2015, https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50252-effectsofacarepeal.pdf.

[57] Congressional Budget Office, *A Macroeconomic Analysis of the President's 2017 Budget*, June 6, 2016, https://www.cbo.gov/publication/51625.

[58] Elmendorf; Marron.

parameters. The JCT has also continued to present information on the parameters of its models that lead to behavioral responses.[59] The justification for assigning model weights might also be addressed in more detail.

- Should dynamic estimates be used only for informational purposes, or also for enforcement purposes? Dynamic estimates allow Congress to weigh the merits of the legislation—should they also be used to determine whether the legislation complies with the budgetary rules that Congress has created for itself?
- Should additional resources be provided to CBO and JCT so that they might develop greater capacity for providing dynamic estimates?

[59] Recent estimates have not provided sufficient information to derive labor supply elasticities from the DSGE model to compare to other models. The functional form of the utility function, which is often separable in consumption and leisure, needs to be provided, as well as the intertemporal and intratemporal parameters. For a discussion of the translation of these parameters into elasticities in prior models, see CRS Report R43381, *Dynamic Scoring for Tax Legislation: A Review of Models*, by Jane G. Gravelle.

Appendix. Dynamic Estimates Conducted by the Joint Committee on Taxation and the Congressional Budget Office

Table A-1. Point Estimates Provided by JCT and/or CBO Incorporating Macroeconomic Effects

Legislation	Estimate
S. 1946 (114th Congress): Tax Relief Extension Act of 2015	Staff of the JCT, *A Report to the Congressional Budget Office of the Macroeconomic Effects of the "Tax Relief Extension Act of 2015," as Ordered to Be Reported by the Senate Committee on Finance*, JCX-107-15, August 4, 2015, https://www.jct.gov/publications/2015/jcx-107-15/. CBO, *Tax Relief Extension Act of 2015*, August 4, 2015, https://www.cbo.gov/publication/50704.
H.R. 2510 (114th Congress): To amend the Internal Revenue Code of 1986 to modify and make permanent bonus depreciation	Staff of the JCT, A Report to the Congressional Budget Office of the Macroeconomic Effects of H.R. 2510, "Bonus Depreciation Modified and Made Permanent," as Ordered to Be Reported by the House Committee on Ways and Means, JCX-134-15, October 27, 2015, https://www.jct.gov/publications/2015/jcx-134-15/. CBO, *H.R. 2510, A Bill to Amend the Internal Revenue Code of 1986 to Modify and Make Permanent Bonus Depreciation,* August 4, 2015, https://www.cbo.gov/publication/50939.
H.R. 3762 (114th Congress): Restoring Americans' Healthcare Freedom Reconciliation Act of 2015	CBO, *H.R. 3762, Restoring Americans' Healthcare Freedom Reconciliation Act of 2015*, October 20, 2015, https://www.cbo.gov/publication/50918.
H.R. 1 (115th Congress): Tax Cuts and Jobs Act	Staff of the JCT, *Macroeconomic Analysis of the Conference Agreement for H.R. 1, the Tax Cuts and Jobs Act*, JCX-69-17, December 22, 2017, https://www.jct.gov/publications/2017/jcx-69-17/.a
H.R. 6760 (115th Congress): Protecting Family and Small Business Tax Cuts Act of 2018	Staff of the JCT, *Macroeconomic Analysis of H.R. 6760, the "Protecting Family and Small Business Tax Cuts Act of 2018," as Reported by the Committee on Ways and Means*, JCX-79-18, September 26, 2018, https://www.jct.gov/publications/2018/jcx-79-18/.

Sources: Congress.gov; the websites of the JCT and CBO.

Notes: As described above, point estimates (as opposed to a range estimate) were required for dynamic estimates under the House and Senate rules in place between 2015 and 2018. This list may not be comprehensive. It includes only those cost estimates that have been made public. In addition, it includes only dynamic estimates that were provided for specific legislation and does not include macroeconomic analysis that may have been provided for general polices or proposals (such as Congressional Budget Office, *Effects of Physical Infrastructure Spending on the Economy and the Budget Under Two Illustrative Scenarios*, August 2021).

a. Additional point estimates incorporating macroeconomic effects of H.R. 1 were issued for previous versions of the legislation. See the JCT website for more information.

Table A-2. Estimates Provided by JCT Showing a Range of Possible Macroeconomic Outcomes

Legislation	Estimate
H.R. 2 (108th Congress): Jobs and Growth Tax Relief Reconciliation Act of 2003	Staff of the JCT, *Macroeconomic Analysis of H.R. 2, the Jobs and Growth Reconciliation Tax Act of 2003*, May 8, 2003, https://www.jct.gov/publications/2003/macroeconomic-analysis-for-the-jobs-and-growth-rec/.
H.R. 598 (111th Congress): To provide for a portion of the economic recovery package relating to revenue measures, unemployment, and health	Staff of the JCT, *Macroeconomic Analysis for the American Recovery and Reinvestment Tax Act of 2009*, January 27, 2009, https://www.jct.gov/publications/2009/macroeconomic-analysis-for-the-american-recovery-a/.
H.R. 3200 (111th Congress): America's Affordable Health Choices Act of 2009	Staff of the JCT, *Macroeconomic Analysis for America's Affordable Health Choices Act of 2009*, October 14, 2009, https://www.jct.gov/publications/2009/macroeconomic-analysis-for-america's-affordable-he/.
H.R. 1 (113th Congress): Tax Reform Act of 2014	Staff of the JCT, *Macroeconomic Analysis of the "Tax Reform Act of 2014,"* JCX-22-14, February 26, 2014, https://www.jct.gov/publications/2014/jcx-22-14/.
H.R. 4718 (113th Congress): To amend the Internal Revenue Code of 1986 to modify and make permanent bonus depreciation	Staff of the JCT, *Macroeconomic Analysis for Bonus Depreciation Modified and Made Permanent*, July 15, 2014, https://www.jct.gov/publications/2014/macroeconomic-analysis-for-bonus-depreciation-modi/.

Sources: Congress.gov; the website of the JCT.

Notes: As described above, rules requiring dynamic point estimates (as opposed to a range estimate) were not required until 2015. This list may not be comprehensive. It includes only those cost estimates that have been made public.

Table A-3. Estimates Provided by CBO That Include Partial Dynamic Estimates

Legislation	Estimate
S. 2611 (109th Congress): Comprehensive Immigration Reform Act of 2006	CBO, *S. 2611, Comprehensive Immigration Reform Act of 2006*, May 16, 2006, https://www.cbo.gov/publication/17779.
S. 744 (113th Congress): Border Security, Economic Opportunity, and Immigration Modernization Act	CBO, *S. 744, Border Security, Economic Opportunity, and Immigration Modernization Act*, June 18, 2013, https://www.cbo.gov/publication/44225.
H.R. 2131 (113th Congress): SKILLS Visa Act	CBO, *H.R. 2131, Supplying Knowledge-based Immigrants and Lifting Levels of STEM Visas Act (SKILLS Visa Act)*, March 12, 2014, https://www.cbo.gov/publication/45179.

Source: Congress.gov; the website of the CBO.

Notes: This list may not be comprehensive. It includes only those cost estimates that have been made public. CBO has described the decision to include partial dynamic estimates. For example, in the cost estimate related to H.R. 2131, it stated, "Following the long-standing convention of not incorporating macroeconomic effects in cost estimates—a practice that has been followed in the Congressional budget process since it was established in 1974—cost estimates produced by CBO and JCT typically reflect the assumption that macroeconomic variables such as gross domestic product (GDP) and employment remain fixed at the values they are projected to reach under current law. However, because H.R. 2131 would materially increase the size of the U.S. labor force, CBO and JCT relaxed that assumption by incorporating in this cost estimate their projections of the direct effects of the bill on the U.S. population, employment, and taxable compensation."

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