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Dynamic Scoring in Practice

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Table of Contents

I.	Introduction.....	4
II.	Background.....	6
A.	What is Dynamic Scoring?.....	6
B.	Who Does Dynamic Scoring?.....	7
1.	Official Budget Scorekeepers.....	7
2.	Other Organizations.....	7
C.	The Law Surrounding Dynamic Scoring.....	8
1.	Pre-2015.....	8
2.	House Rule XIII, Section 8.....	9
3.	Budget Resolution for Fiscal Year 2016.....	10
4.	Current Law: House Rule XIII Section 8.....	11
D.	Why Does Dynamic Scoring Matter?.....	11
1.	Public Perception.....	11
2.	Logistics of Becoming Law.....	12
3.	The Magnitude of Dynamic Scores.....	15
III.	Criteria for Worthwhile Dynamic Scoring.....	16
A.	Elmendorf’s Criteria.....	17
1.	Only Perform Dynamic Scoring for Major Legislation.....	17
2.	Score Spending Provisions as well as Taxing.....	22
3.	CBO and JCT Must Have the Necessary Resources.....	25
B.	Other Potential Criteria.....	27
1.	Transparency.....	27
2.	Robustness to Gaming.....	30
IV.	How is Dynamic Scoring Done?.....	33
A.	Short-term Effects.....	35
1.	How Short-Term Effects are Modeled.....	35
2.	Debate over the Merits of Including Short-Term Effects.....	37
B.	Long-Term Effects.....	38
1.	Solow Growth Model.....	38
2.	Overlapping Lifecycle Growth Model.....	43
C.	Determining and Reporting the Uncertainty of Macroeconomic Effects.....	45
V.	Examples of Dynamic Scoring.....	47
A.	Bonus Depreciation.....	47
1.	The Macroeconomic Effects.....	48

2.	Critical Response	49
3.	Takeaways	51
B.	The Tax Relief Extension Act of 2015 (Tax Extenders).....	52
1.	Macroeconomic Effects	52
2.	Critical Response	53
3.	Takeaways	54
C.	ACA Repeal (2015).....	55
1.	Macroeconomic Effects	55
2.	Critical Response	56
3.	Takeaways	56
D.	The American Health Care Act	57
E.	Tax Reform Act of 2014	58

I. Introduction

Budget scoring is the practice of determining the impact of proposed legislation on the federal budget. The Joint Committee on Taxation (JCT) is charged with scoring tax provisions, and the Congressional Budget Office (CBO) has that responsibility for other provisions. Traditionally, federal budget scoring has assumed that the proposed legislation being scored would not change the nation's overall economic output. That assumption is often untrue, especially in the case of major legislation affecting taxation, government spending, or certain regulatory policies. The primary stated purpose of a tax rate cut, for example, is to grow the economy. Lowering taxes increases economic activity, which increases taxable income and makes up for part of the revenue lost. For that reason, many have argued that budget scores have an implicit bias to the extent they ignore likely macroeconomic effects. The same is true of large-scale spending increases, which can increase short-term economic activity and offsets part of the cost of the spending.

In 2015, the House adopted changes to House Rule XIII that required budget estimates for major pieces of legislation to incorporate estimates of macroeconomic effects.¹ The budget resolution adopted for fiscal year 2016 (signed in May of 2015) created similar rules that covered both the House and Senate.² This method of estimating budgetary effects, known as dynamic scoring, can have a huge effect on fiscal policy. A bill's budget score can impact how it is perceived by the public and whether it becomes law. Dynamic scoring can thus shift fiscal policy toward legislation that is forecasted to have positive macroeconomic effects. The possibility that dynamic scoring will push fiscal policy toward tax cuts has caused the debate over its adoption to

¹ H.R. Res. 5, 114th Cong. § 8 (2015) <https://www.congress.gov/bill/114th-congress/house-resolution/5/text>

² S. Con. Res. 11, 114th Cong. § 3112 (2015) <https://www.congress.gov/114/bills/sconres11/BILLS-114sconres11enr.pdf>

be tinged by partisan politics, with Republicans supporting dynamic scoring and Democrats opposing it.

One key contribution to this debate came from former CBO Director Douglas Elmendorf in June of 2015. Elmendorf was selected as CBO Director when Democrats controlled the Senate and House in the early years of the Obama Administration, and Speaker Boehner kept Elmendorf on as CBO Director when Republicans took control of the House in 2011. Elmendorf wrote a paper in 2015 endorsing the use of dynamic scoring under certain circumstances.³ This was somewhat surprising given that Elmendorf was originally chosen to serve as CBO Director by the Democrats, who have traditionally opposed dynamic scoring. His paper perhaps allayed some of the concern by democratic budget experts that Republicans would use the process to justify imprudent fiscal policy.

This paper will discuss how and when the CBO and JCT incorporate macroeconomic effects into budget scores and whether dynamic scoring has been carried out in the way Elmendorf recommended. There are two themes that run through this discussion. First, the practice of dynamic scoring leaves a great deal of discretion to CBO and JCT. CBO and JCT have responded to this discretion by attempting to use assumptions that fit the mainstream economic literature and relying on the same models they have used for many years. Second, the way dynamic scoring has been implemented occasionally runs counter to its stated purpose. Dynamic scoring is meant to provide more accurate budget scores, but House Rule XIII can be manipulated in ways that lead to less accurate budget scores.

Part II of this paper provides background on dynamic scoring and the current legal authority on incorporating macroeconomic effects into budget scores. Part III discusses

³ Douglas W. Elmendorf, “‘Dynamic Scoring’: Why and How to Include Macroeconomic Effects in Budget Estimates for Legislative Proposals,” Brookings (June 2016) <https://www.brookings.edu/wp-content/uploads/2015/09/ElmendorfTextFall15BPEA.pdf>

Elmendorf's criteria for worthwhile dynamic scoring, suggests two additional criteria, and then discusses whether current practice meets those criteria. Part IV explains the mechanics of how CBO and JCT forecast macroeconomic effects. This includes a discussion of the major components and assumptions that go into a dynamic score, and some of the debate surrounding those key assumptions. Part V discusses the reactions of economists, politicians, and commentators to specific CBO and JCT macroeconomic estimates and techniques.

II. Background

A. What is Dynamic Scoring?

Dynamic scoring is budget scoring that forecasts and incorporates the macroeconomic effects of legislation. Conventional budget scoring has operated on the premise that legislation will not change the nation's overall economic output. This is a false assumption, especially given the amount of legislation that is specifically geared towards increasing the nation's overall economic output. Imagine a 5% income tax cut. That tax cut would make it more profitable for people to work, leading to people working more hours. The increase in labor would stimulate the economy. That economic growth would in turn lead to people and businesses having more taxable income, which would lead to a revenue increase for the government that would partially offset the revenue lost by the tax cut.⁴ Dynamic scoring attempts to forecast the likely revenue increase resulting from the macroeconomic effects of proposed legislation and incorporate that estimate into the bill's score. In contrast, static scoring assumes no change in behavior or economic output as a result of legislation. Conventional federal budget scoring has not been entirely static. Conventional budget scores incorporate some expected behavioral responses to

⁴ Tax cuts typically also have short-term macroeconomic effects, which are discussed in greater detail below.

legislation, but assume that overall economic output will remain the same. For example, a traditional budget estimate for a bill that increases tax benefits for individual retirement accounts (IRAs) would incorporate the behavioral effect that the legislation would have on IRA participation, but would not include the macroeconomic effects of increased investment that would result from that legislation.

B. Who Does Dynamic Scoring?

1. Official Budget Scorekeepers

The Congressional Budget Office is charged with producing budget scores for proposed legislation pursuant to the Congressional Budget Impoundment and Control Act of 1974.⁵ That same piece of legislation requires CBO to use the revenue estimates provided by the Joint Committee on Taxation when scoring tax provisions.⁶ The division of labor is the same when dynamic scoring is involved. CBO produces dynamic estimates for proposed legislation and must use the dynamic estimates provided by JCT for tax provisions.

2. Other Organizations

Other organizations have begun performing dynamic analysis and comparing their results to those of CBO and JCT. Tax Foundation⁷ and the Committee for a Responsible Federal Budget (CRFB)⁸ have produced dynamic estimates on provisions that CBO has also scored. Where possible, their estimates are compared to CBO's estimates in the last section of this paper. Wharton,⁹ Brigham Young,¹⁰ and other schools have produced dynamic analysis tools for tax

⁵ 6 U.S.C. § 653 (2012)

⁶ 2 U.S.C. § 601(f) (2012).

⁷ See Alan M. Cole, "Economic and Budgetary Effect of Permanent Bonus Expensing," Tax Foundation, 4 (Sept. 2015) https://files.taxfoundation.org/legacy/docs/TaxFoundation_FF480.pdf

⁸ See "The Cost of Full Repeal of the Affordable Care Act" Committee for a Responsible Federal Budget (Jan. 4 2017) <http://www.crfb.org/papers/cost-full-repeal-affordable-care-act>

⁹ "Penn Wharton Budget Model's Tax Policy Simulator"

<http://www.budgetmodel.wharton.upenn.edu/issues/2016/10/16/penn-wharton-budget-models-tax-policy-simulator>

policy but have not used them to provide macroeconomic analysis of pending legislation. It is a natural progression that fiscal policy think tanks, universities, and other organizations have begun to perform dynamic analysis. The existence of outside dynamic scores may help CBO and JCT get better at providing dynamic scores by creating more feedback from outside experts.¹¹

C. The Law Surrounding Dynamic Scoring

1. Pre-2015

CBO and JCT were producing macroeconomic analyses even before the recent push to require macroeconomic analysis for pending legislation. JCT has been modeling macroeconomic effects since 2003, when the House of Representatives began requiring JCT to provide a “macroeconomic impact analysis” for legislation that would amend the Internal Revenue Code.¹² Before House Rule XIII and the 2016 Budget Resolution, CBO had traditionally done macroeconomic analysis for long-term budget projections but not for scoring proposed legislation.¹³ However, CBO had produced at least one budget score for proposed legislation that included macroeconomic effects. CBO scored an immigration reform bill in 2013 and included some macroeconomic effects in its analysis.¹⁴ CBO did so because it expected that the bill

¹⁰ See Open Source Dynamic Tax Scoring Model <https://github.com/open-source-economics/OG-USA>

¹¹ Hearing on Oversight of the Congressional Budget Office Before the S. Comm. On the Budget, 114th Cong. 1:07:00 (2016) <https://www.budget.senate.gov/oversight-of-the-congressional-budget-office-cbo>. This was in response to a question from Sen. Chuck Grassley recognized the existence of the Wharton and Brigham Young budget tools and asked how they could help CBO provide budget scores more quickly and transparently.

¹² H.R. DOC. NO. 112-0161, House Rule XIII § (3)(h)(2)(A)(i) at 643. <https://www.gpo.gov/fdsys/pkg/HMAN-113/pdf/HMAN-113.pdf>

¹³ Wendy Edelberg, “Dynamic Analysis at CBO” Cong. Budget Office 7 (August 14, 2015) <https://www.cbo.gov/publication/51286>

¹⁴ See “The Economic Impact of S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act,” Cong. Budget Off. 2 (June 18, 2013) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/costestimate/s744aspassed0.pdf>

“would significantly increase the size of the U.S. labor force,” though it did not include all of the likely macroeconomic effects.¹⁵

2. House Rule XIII, Section 8

In January 2015, the House adopted House Resolution 5, which added Section 8 to House Rule XIII, requiring CBO and JCT to provide macroeconomic estimates under certain circumstances.¹⁶ The Rule requires that CBO or JCT provide a dynamic score “to the extent practicable” for “major legislation.”¹⁷ Major legislation is defined two ways. First, a bill is automatically considered major legislation if it “causes a gross budgetary effect (before incorporating macroeconomic effects)...greater than .25 percent of the current projected gross domestic product” in any year over the next ten years.”¹⁸ This means that legislation that has a budgetary effect greater than about \$47 billion in ten years will be subject to dynamic scoring.¹⁹ Second, a bill is major legislation if it is “designated as such by the chair of the Committee on the Budget for all direct spending legislation other than revenue legislation or the Member who is chair or vice chair, as applicable, of the Joint Committee on Taxation for revenue legislation.”²⁰ The Joint Committee on Taxation is a standing Committee comprising Senators from the House Ways and Means Committee and the Senate Finance Committee. The Chairmanship of the Joint Committee on Taxation alternates annually between the Chair of House Ways and Means and the Chair of the Senate Finance Committee. In essence, this means

¹⁵ See “THE ECONOMIC IMPACT OF S. 744, THE BORDER SECURITY, ECONOMIC OPPORTUNITY, AND IMMIGRATION MODERNIZATION ACT,” CONG. BUDGET OFF. 2 (June 18, 2013) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/costestimate/s744passed0.pdf>

¹⁶ Cristina Marcos, “House Adopts ‘Dynamic Scoring’ Rule,” The Hill (Jan. 6, 2015) <http://thehill.com/blogs/floor-action/house/228684-house-adopts-dynamic-scoring-rule>

¹⁷ H.R. Res. 5, 114th Cong., § XIII (8)(a). <http://clerk.house.gov/legislative/house-rules.pdf>

¹⁸ H.R. Res. 5, 114th Cong., § XIII (8)(d)(1)(A). <http://clerk.house.gov/legislative/house-rules.pdf>

¹⁹ Wendy Edelberg, “Dynamic Analysis at CBO” Cong. Budget Office 5 (August 14, 2015) <https://www.cbo.gov/publication/51286>

²⁰ S. Con. Res. 11, 114th Cong. § 3112 (2015) <https://www.congress.gov/114/bills/sconres11/BILLS-114sconres11enr.pdf>

that the Chair of the House Ways and Means Committee always has the power to designate revenue legislation as major legislation. House Rule XIII excludes appropriations bills from the definition of major legislation.²¹

The change to House Rule XIII introduced the possibility that CBO and JCT would need to produce dynamic estimates, but no dynamic estimate were called for until after the 2016 Budget Resolution was passed in May of 2015. House Rule XIII also requires CBO and JCT to provide a qualitative assessment of macroeconomic effects in the years outside the budget window. The analysis of macroeconomic effects in the out-years is qualitative likely because it gets progressively more difficult to project macroeconomic effects as you move further into the future.

3. Budget Resolution for Fiscal Year 2016

In May of 2015, the House and Senate passed a budget resolution for 2016 that included a dynamic scoring requirement that was almost identical to that in House Rule XIII.²² The definition of major legislation was the same, and the Resolution also excluded appropriations bills.²³ The main difference was that the Budget Resolution created an avenue for dynamic scoring for Senate bills. The definition of major legislation for Senate purposes was the same, except that a treaty would be considered major legislation if it had an impact on the budget greater than or equal to \$15 billion in any fiscal year in the budget window.²⁴ The dynamic

²¹ Rule XIII Section 8 required dynamic scoring for “any estimate provided by the Congressional Budget Office under Section 402 of the Congressional Budget Act of 1974 for any major legislation.” There is an analogous requirement for legislation scored by JCT under 201(f) of the Congressional Budget Act of 1974. §§ 402 and 201(f) do not apply to appropriations bills, meaning that the dynamic scoring requirement never applies for appropriations bills. See 2 U.S.C. §§ 653 & 601(f). Even if a bill was designated major legislation by the Budget Committee chair, this rule would not require scorings for an appropriations bill.

²² S. Con. Res. 11, 114th Cong. § 3112(c)(1)(A)(ii)(II) and (c)(1)(B)(ii)(II) (2015).

²³ § 3112(a) of the 2016 Budget Resolution has the exact same requirement as Section 8 of House Rule XIII. By tying dynamic scoring to estimates provided under §§ 402 and 201(f), House Rule XIII prevents dynamic scoring for appropriations bills.

²⁴ S. Con. Res. 11, 114th Cong. § 3112(c)(1)(A)(i)(II).

scoring language in the 2016 Budget Resolution covered the 114th Congress, and thus expired when the 114th Congress ended on January 3, 2017.

4. Current Law: House Rule XIII Section 8

The dynamic scoring requirement in the 2016 budget resolution expired on January 3, 2017, but CBO and JCT will still need to perform dynamic scoring for certain bills because House Rule XIII, Section 8 remains in effect. That provision was unchanged in the House Rules for the 115th Congress.²⁵ The Senate does not appear to have an analogous rule.²⁶

D. Why Does Dynamic Scoring Matter?

Dynamic scoring matters because including macroeconomic effects in budget scores can have a large effect on budget scores, which can determine whether a bill becomes law. A budget score can impact a bill's likelihood of passage in two ways: by changing public perception and by changing the number of votes necessary to require passage in the Senate.

1. Public Perception

A budget score can alter the public perception of a bill.²⁷ For example, opponents of government stimulus legislation following the financial crisis focused on the effects that the legislation would have on the deficit. Invoking fiscal responsibility can be powerful.²⁸ Relatedly, many politicians are hesitant to vote for legislation that can be labeled fiscally irresponsible. The

²⁵ H.R. Res. 5, 115th Cong. § 8 (2017) <https://www.congress.gov/bill/114th-congress/house-resolution/5/text> <http://docs.house.gov/billsthisweek/20170102/BILLS-115hres5-PIH-FINAL.pdf> (not changing the rule from the previous House Rules Resolution)

²⁶ The standing rules of the Senate are much more difficult to change because resolutions to change the rules can be filibustered. This is likely why legislators chose to use the 2016 Budget Resolution to create a dynamic scoring avenue for the Senate. RICHARD S. BETH, CONG. RESEARCH SERVICE, R42929, PROCEDURES FOR CONSIDERING CHANGES IN SENATE RULES (Jan. 22, 2013) <https://fas.org/sgp/crs/misc/R42929.pdf>

²⁷ G. William Hoagland, "Dynamic Scoring: Is it Much Ado About Something?" ABA TAX TIMES, Vol. 35 No. 1 11 (October 2015).

²⁸ See, e.g., Aaron E. Lorenzo, "Bonus Depreciation Permanency Remains on Hold in Part Because of Bill's Price Tag," BNA (March 3, 2015) <https://www.bna.com/bonus-depreciation-permanency-n17179923583/> (Stating that the cost of bonus depreciation is preventing it from being passed).

budget scores from JCT and CBO carry a lot of weight with politicians and voters because the scores are viewed as nonpartisan.²⁹ One could argue that the effect on public perception is minimal because voters are largely unaware of CBO and JCT and their reputations for political neutrality. That may be true, but news outlets tend to report CBO and JCT estimates as presumptively accurate.³⁰ Politicians have rarely tried to discredit the professionalism and nonpartisan nature of the agency, though they often argue that scores are incorrect.³¹

2. Logistics of Becoming Law

i. Reconciliation

A bill's budget score can impact how many votes a bill needs in order to pass and whether that bill can become law without violating federal budget restrictions. A budget process called reconciliation allows taxing and spending legislation to pass with a bare majority in the Senate under certain circumstances.³² However, reconciliation cannot be used for a proposal that increases the deficit outside the ten-year budget window or that fails to "comply with the

²⁹ See, e.g., Donald B. Marron, "Thoughts on Dynamic Scoring of Fiscal Policies," TAX POLICY CENTER (June 2016) <http://www.taxpolicycenter.org/sites/default/files/alfresco/publication-pdfs/2000829-Thoughts-on-Dynamic-Scoring-of-Fiscal-Policies.pdf>.

³⁰ See, Jeanne Sahadi, "Last Year's Tax Deal is a Doozy for Deficits," CNN (Jan. 21, 2016) <http://money.cnn.com/2016/01/19/news/economy/budget-deficit/> ("The budget deficit for 2016 will be 31% higher . . . thanks in great part to a \$900 billion tax deal passed by Congress in December. . . . That's according to data from the nonpartisan Congressional Budget Office's budget and economic outlook."); Robert King, "CBO: Repealing Obamacare Parts Would Save \$1.2 Trillion," Washington Examiner ("The nonpartisan office released a report Thursday that found repealing the healthcare law's subsidies for health insurance coverage and paying for the Medicaid expansion would save money.").

³¹ One outlier to this trend was Newt Gingrich, who called the CBO "a radical socialist institution" in 2011. He doubled down on this opinion in a 2017 op-ed stating, "[CBO] is a left wing, corrupt, bureaucratic defender of big government, and liberalism. Its scoring of ObamaCare was not just wrong, it was clearly corrupt." Newt Gingrich, "Trump, New York's Wollman Rink, and the Congressional Budget Office," Fox News (Jan. 13, 2017) <http://www.foxnews.com/opinion/2017/01/13/newt-gingrich-trump-new-york-s-wollman-rink-and-congressional-budget-office.html>. Research has not uncovered much agreement with Gingrich's comments. The Trump Administration criticized CBO in advance of its score for the American Health Care Act, but did not seem to question the agency's nonpartisan status.

³² For more on Reconciliation and the Byrd Rule, see Derek Lindblom, "The Budget Reconciliation Process," Harvard Law School Federal Budget Policy Seminar, Briefing Paper No. 35, (May 11, 2008) http://www.law.harvard.edu/faculty/hjackson/ReconciliationByrd_35.pdf.

spending and revenue levels in the [most recent] budget resolution.”³³ This restriction means that a budget score can dictate whether a bill can pass the Senate with a bare majority, which makes scoring methodology incredibly important for fiscal policy. Although dynamic scoring has traditionally not been used in reconciliation, some experts believe that estimates incorporating macroeconomic effects will be adopted as the official budget score in the future.³⁴ The current administration has hinted that incorporating dynamic effects will help tax reform legislation comply with budgetary restraints.³⁵

It is unclear whether a dynamic estimate can be used in the Senate under current law. Now that the 115th Congress is in session, the 2016 Budget Resolution dynamic scoring provisions are no longer in effect. If the CBO scores a Senate version of a bill, that score will not include macroeconomic pieces of legislation, even if the bill meets the major legislation criteria. The House version of that same bill could receive dynamic scoring in the House. The budget scores are especially important in the Senate, where failure to meet certain budgetary targets can expose the reconciliation vehicle to a 60 vote point of order.³⁶ The budget scores used by the Senate are designated by the Budget Committee Chair, but the Budget Committee chair typically defers to the scores provided by the Congressional Budget Office.

If a bill’s dynamic score can be used for reconciliation purposes, then even estimates outside the ten-year budget window would be relevant for the reconciliation process. The Byrd

³³ “Reconciliation 101,” COMMITTEE FOR A RESPONSIBLE FED. BUDGET (Dec. 6, 2016) <http://www.crfb.org/papers/reconciliation-101>

³⁴ G. William Hoagland, “Dynamic Scoring: Is it Much Ado About Something?” ABA TAX TIMES Vol. 35 No. 1 (October 2015); “Reconciliation 101,” Committee for a Responsible Fed. Budget (Dec. 6 2016) <http://www.crfb.org/papers/reconciliation-101>; “Decision Time for Tax Reform: 2017 Tax Policy Outlook,” Price Waterhouse Cooper 4 (Jan. 2017) <https://www.pwc.com/us/en/tax-services/assets/2017-tax-policy-outlook-sml.pdf>.

³⁵ See, e.g., Matthew J. Belvedere “Trump Advisor Gary Cohn: We’re Aiming for a Revenue-Neutral Tax Cut Over 10 Years,” CNBC (Mar. 10 2017) <http://www.cnbc.com/2017/03/10/trump-advisor-gary-cohn-were-aiming-for-a-revenue-neutral-tax-cut.html> (Quoting Gary Cohn, the Director of the National Economic Council as saying, “We’re going to have to be revenue neutral over a 10-year period. Yes, we’re going to be able to use dynamic scoring.”)

³⁶ 2 U.S.C. § 644(b)(1)(A) (2012).

Rule subjects a reconciliation vehicle to a 60 vote point of order if it increases the deficit outside of the ten-year budget window.³⁷ House Rule XIII only requires a “qualitative assessment of the budgetary effects” for the 20-year period after the ten-year budget window.³⁸ CBO and JCT follow this guidance and provide only a qualitative assessment for budgetary effects outside the budget window.³⁹ If the legislation is otherwise budget neutral outside the budget window, a qualitative assessment would likely be authoritative when determining whether the legislation increases the deficit outside the budget window.

However, the role of the qualitative assessment will be murkier for legislation that is not budget neutral on a static basis. For example, imagine a piece of tax reform legislation that would decrease the deficit by \$10 billion on a static basis in every year outside the budget window. JCT provides a qualitative assessment of the macroeconomic effects outside the budget window, estimating that the same legislation would have a large negative macroeconomic impact in those years. Under these circumstances, it would be very difficult to determine whether the legislation would actually increase the budget deficit in the years outside the budget window. Without a point estimate that includes the dynamic effects outside the budget window, it will sometimes be hard to tell whether JCT expects the legislation to increase the deficit outside the budget window. Given that lack of clarity, the qualitative assessment could be difficult to use for Byrd Rule purposes unless CBO and JCT provide more detailed information about the size of second and third decade macroeconomic effects of legislation relative to the static score. This

³⁷ 2 U.S.C. § 644(b)(1)(A)(E) (2012).

³⁸ S. Con. Res. 11, 114th Cong. § 3112(b)(1) (2015); see Wendy Edelberg, “Dynamic Scoring at CBO” CONG. BUDGET OFF. 5 (Oct. 21, 2015). <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/presentation/50919-presentation.pdf>

³⁹ “A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, ‘BONUS DEPRECIATION MODIFIED AND MADE PERMANENT,’” JOINT COMMITTEE ON TAX’N 3 (October 27, 2015). <https://www.jct.gov/publications.html?func=startdown&id=4844>

may be the appropriate result since macroeconomic effects get more difficult to determine the further one gets into the future.

ii. PAYGO Restrictions

The Federal Government enacted Pay as You Go (PAYGO) rules in 2010, which require that mandatory spending legislation be at least budget neutral.⁴⁰ This means that legislation with a negative budget score cannot become law unless the rules are waived,⁴¹ though PAYGO rules are often gamed or unenforced.⁴² At the very least, it takes political capital to waive PAYGO requirements, which means that dynamic scoring will make it easier to pass legislation that is forecasted to have positive macroeconomic effects.

3. The Magnitude of Dynamic Scores

Dynamic effects can have a large impact on a bill's budget score. Before CBO and JCT had produced any estimates under the 2015 changes to House Rule XIII, Jane Gravelle, an economist for the Congressional Research Service, stated that dynamic effects for tax legislations tend to range from 3% to 8%.⁴³ White House officials have argued that dynamic

⁴⁰ ROBERT KEITH, CONG. RESEARCH SERV., R41157, THE STATUTORY PAY-AS-YOU-GO ACT OF 2010: SUMMARY AND LEGISLATIVE HISTORY (April 2, 2010) <https://democrats-budget.house.gov/sites/democrats-budget.house.gov/files/documents/CRS-stat-paygo.pdf>. PAYGO rules date back to the Budget Enforcement Act of 1990, but expired in 2002. These rules were resurrected in 2010. MEGAN SUZANNE LYNCH, CONG. RESEARCH SERV., R41901, STATUTORY BUDGET CONTROLS IN EFFECT BETWEEN 1985 AND 2002 8 (JULY 1, 2011). <https://fas.org/sgp/crs/misc/R41901.pdf>

⁴¹ ROBERT KEITH, CONG. RESEARCH SERV., R41157, THE STATUTORY PAY-AS-YOU-GO ACT OF 2010: SUMMARY AND LEGISLATIVE HISTORY (April 2, 2010). <https://democrats-budget.house.gov/sites/democrats-budget.house.gov/files/documents/CRS-stat-paygo.pdf>

⁴² Ellen Bradford, Matthew Scogin, Avery Day, & David Weiler "PAYGO Rules and Sequestration Procedures," Harvard Law School Federal Budget Policy Briefing Paper No. 2 12-19 (2008). http://www.law.harvard.edu/faculty/hjackson/paygo_2%28rev%29.pdf; "What is PAYGO," Tax Policy Center <http://www.taxpolicycenter.org/briefing-book/what-paygo>.

⁴³ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 4 (JAN. 24, 2015) http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf. Note that this estimate is based on certain assumptions, including a closed economy that are not true of the real world.

effects can make up for the majority of the revenue lost by tax reform proposals,⁴⁴ but that is inconsistent with how JCT has traditionally scored tax legislation. The relatively few tax reform measures for which JCT has provided dynamic estimates have fallen within the 3% and 8% range identified by the Congressional Research Service (CRS).

Dynamic effects can be much larger for other types of legislation. A 2015 CBO report estimated the effect that repealing the Affordable Care Act would have on the budget deficit using both static and dynamic models. The traditional model showed that repealing the Affordable Care Act (ACA) would cost \$353 billion over ten years, while the dynamic model showed that repeal would increase the deficit by just \$137 billion over the same period.⁴⁵ CBO's dynamic estimate was not an outlier. The Committee for a Responsible Federal Budget (CRFB) conducted its own analysis in 2017, estimating the cost of repeal at \$350 billion using static scoring and \$150 billion under dynamic scoring.⁴⁶ A difference of \$200 billion in the ten-year budget window can make a huge difference for policymakers.⁴⁷ The details of the ACA Repeal budget score are discussed in more detail in Section V, but for now it is enough to notice that dynamic effects can be very large.

III. Criteria for Worthwhile Dynamic Scoring

There are multiple ways to evaluate whether dynamic scoring is being done properly and responsibly. This section will introduce suggestions for such criteria, starting with those laid out

⁴⁴ Jake Miller, "Growth Will Pay for a 'Majority' of Tax Reform, Treasury Secretary Says," CBS News (April 20, 2017) <http://www.cbsnews.com/news/growth-will-pay-for-a-majority-of-tax-reform-treasury-secretary-steven-mnuchin-says/>

⁴⁵ CONG. BUDGET OFF., BUDGETARY AND ECONOMIC EFFECTS OF REPEALING THE AFFORDABLE CARE ACT 2 (June 2015) http://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50252-Effects_of_ACA_Repeal.pdf

⁴⁶ "The Cost of Full Repeal of the Affordable Care Act" COMMITTEE FOR A RESPONSIBLE FED. BUDGET (Jan. 4 2017) <http://www.crfb.org/papers/cost-full-repeal-affordable-care-act>

⁴⁷ Because reconciliation can only be used once each year, the extra revenue loss associated with static scoring would bleed over into the GOP's corporate tax reform efforts. That could force them to choose a less aggressive proposal than they might otherwise.

by former CBO Director Douglas Elmendorf. This section will also discuss whether current dynamic scoring practice meets those criteria. House Rule XIII currently controls when dynamic scoring is done for proposed legislation, but the 2016 Budget Resolution was controlling when the dynamic scores discussed in this paper were made. This section will therefore discuss how well both frameworks satisfy the criteria for worthwhile dynamic scoring.

A. Elmendorf’s Criteria

Elmendorf argues that, under the right circumstances, dynamic scoring provides a more accurate estimate of the effect on the budget. In his view, dynamic scoring (1) should be used for proposals with large effects on the budget, (2) should be used for scoring measures that involve “spending as well as revenues,” and (3) should not be used “when CBO and JCT find that they do not have the tools or time needed to do a careful analysis of those effects.”⁴⁸ Elmendorf argues that CBO’s job is to provide the most accurate score possible, and ignoring macroeconomic effects introduces inaccuracy into that score. Given that justification for dynamic scoring, it is unsurprising that Elmendorf’s criteria are aimed at maximizing accuracy. Following these criteria is critical for ensuring that the use of dynamic scoring actually reduces bias in budget scores. Elmendorf pointed out that the 2016 Budget Resolution meets these criteria in some respects but not others. The same is true of House Rule XIII.

1. Only Perform Dynamic Scoring for Major Legislation

i. The Importance of Limiting the Use Dynamic Scoring

Elmendorf argues that dynamic scoring should only be performed on major legislation. This is related to the resource limitations discussed below. Elmendorf explains it as follows: “CBO and JCT do not have sufficient staff or time to carefully analyze macroeconomic effects

⁴⁸ Elmendorf, *supra* note 3, at 93.

for every proposal under consideration, and using rules of thumb in place of careful analysis risks the credibility of the estimates.”⁴⁹ CBO and JCT need to provide thorough and reasonable analysis in order to maintain their credibility, and they cannot do that if they have to perform macroeconomic analysis for every piece of proposed legislation.

Elmendorf discusses a few different ways that overtaxing CBO and JCT could lead to inaccurate macroeconomic estimates. First, overworking CBO and JCT prevents them from spending enough time on a given estimate, which can lead to mistaken or insufficiently thoughtful analysis.⁵⁰ Macroeconomic estimates rely on assumptions about the effects of legislation on monetary policy and other difficult-to-predict circumstances, and that type of analysis takes time and careful consideration.⁵¹ Second, scoring too many bills would force CBO and JCT to rely on “rules of thumb.”⁵² Relying on rules of thumb can lead to inaccurate scores and, more importantly, gameable scores; analyses that rely on shortcuts can more easily be manipulated by bill writers hoping for an artificially low budget score.⁵³ Perhaps most importantly, CBO and JCT’s limited resources are best spent analyzing legislation that would have the largest impact on the federal budget.⁵⁴

ii. House Rule XIII is Over-Inclusive and Under-inclusive

House Rule XIII does a decent job of meeting Elmendorf’s first criterion, though he would likely prefer a higher threshold for major legislation and a safety valve allowing legislators of either party to request a macroeconomic estimate for bills.⁵⁵ His critique of the

⁴⁹ *Id.*

⁵⁰ *Id.* at 111.

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.* at 93. Elmendorf’s critique applies to the 2016 Budget Resolution, but House Rule XIII is the same in this respect.

2016 Budget Resolution highlighted that the .25% of GDP threshold was too low because it only requires the .25% threshold to be met in an individual year inside the budget window instead of across the budget window as a whole. He argued that it would be better to apply the threshold to the entire budget window and allow legislators to request dynamic scores for other legislation. House Rule XIII is identical in these respects. It has the same .25% of GDP threshold for major legislation and the same process allowing certain representatives to designate a bill as major legislation.

Just like the 2016 Budget Resolution, House Rule XIII provides separate avenues for revenue and non-revenue legislation that does not meet the GDP threshold to be designated major. However, that power rests only with the majority party. The House Budget Committee Chairman can designate non-revenue legislation as major legislation. The House member who is the “chair or vice chair, as applicable, of the Joint Committee on Taxation” has that same power for revenue legislation.⁵⁶ The reference to the “chair or vice chair” at first sounds like the minority party may be able to request a dynamic score for revenue legislation. In fact, the power rests solely with the majority party. As mentioned above, the “chair or vice chair” language in House Rule XIII refers to the fact that the chairmanship of JCT alternates annually between the Chair of Senate Finance and the Chair of House Ways and Means. In odd years the Chair of Ways and Means will be JCT Chair, and in even years he or she will be Vice Chair. Thus House Rule XIII is merely using overly complicated language to communicate that the Chair of House Ways and Means has the power to designate revenue legislation as major legislation.

The ability to designate bills as major legislation does not allay Elmendorf’s concerns entirely because the safety valve is only available to the party in control of the House. By making

⁵⁶ H.R. Res. 5, 114th Cong. § 8 (2015) § 8(d)(1)(B).

fewer bills presumptively subject to dynamic scoring and allowing legislators of both parties to request dynamic scoring for all types of bills, Elmendorf's recommendations would better focus CBO's resources as long as legislators are judicious in their dynamic scoring requests.

iii. Title II of the Dodd-Frank Act: An Example of the Importance of Allowing Legislators to Request Dynamic Scores

Elmendorf suggests that legislators be able to request a dynamic score for proposed legislation, but unfortunately this mechanism is incomplete under current law. This leaves the budget process more easily manipulated than it should be. Title II of Dodd-Frank is an excellent example of the ways in which a rigid definition of major legislation could lead to problems. Title II of Dodd-Frank gives the Federal Deposit Insurance Corporation (FDIC) authority to “borrow funds from the Treasury to liquidate [insolvent financial institutions] and to levy fees on large bank holding companies and other financial firms to cover any losses.”⁵⁷ Title II is effectively cost-neutral, since any money spent to liquidate a financial institution will be regained through an assessment on the industry. However, the legislation was scored as costing \$20.3 billion because of a peculiarity in federal budget scoring. CBO scores are focused on the ten-year budget window, so a bill will appear costlier than it is if it calls for spending within ten years and pays for that spending after the close of the budget window. There is a chance that FDIC will need to borrow funds from Treasury in the later years of the budget window. If that happens, it may not be able to recoup the full cost of the borrowing within the budget window. Economist and former Secretary of the Treasury Larry Summers described the budget issue as follows:

The apparent cost occurs only because the CBO measures budget impacts within a 10-year window and if, for example, a liquidation takes place in year nine, then the

⁵⁷DOUGLAS W. ELMENDORF, CONG. BUDGET OFF., REVIEW OF CBO'S COST ESTIMATE FOR THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT 10 (Mar. 30, 2011) <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/03-29-dodd-frank.pdf>.

reimbursement will take place outside the 10-year window. In the economically relevant present value sense [orderly liquidation authority] by construction has no budget cost.⁵⁸

Because the borrowed funds would likely be recouped after the budget window, CBO estimated that \$26.3 billion would be spent on orderly liquidation within the ten-year budget window, with only \$6 billion in “revenues from assessments paid to cover any losses.”⁵⁹

The result is that repealing Title II would free up \$20 billion that can be spent elsewhere, even though repealing Title II would not actually result in any savings. This is a clear example of the problem with fixating on the ten-year budget window, but it is also instructive for dynamic scoring. Dynamic scoring could counteract the distortion created by the budget window by factoring in the macroeconomic harm that could result from the repeal of Title II. Title II protects the economy in the event of the failure of a large financial institution, and repealing it would expose the economy to great harm in the event of such a failure. The effects could be massive, and an estimate of the macroeconomic benefits of Title II within the budget window would likely far exceed the \$20 billion in estimated cost.⁶⁰

If a bill was proposed to repeal Title II, it would not be subject to dynamic scoring because it does not meet the .25% of GDP threshold. That is in spite of the staggering macroeconomic effects of removing a critical component of the apparatus protecting the United States’ economy. This demonstrates that the dynamic scoring rules are underinclusive insofar as they depend solely on the static score of proposed legislation. While House Rule XIII would allow the House Budget Committee Chairman to request a dynamic score for this type of

⁵⁸ Lawrence Summers, “Repeal of Liquidation Tool Would Be a Major Unnecessary Error,” *Fin’l Times* (Jan. 18, 2016) <http://blogs.ft.com/larry-summers/2017/01/18/repeal-of-liquidation-tool-would-be-a-major-unforced-error/>.

⁵⁹ DOUGLAS W. ELMENDORF, CONG. BUDGET OFF., REVIEW OF CBO’S COST ESTIMATE FOR THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT 10 (Mar. 30, 2011) <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/03-29-dodd-frank.pdf>.

⁶⁰ While this is likely true, it is much harder for CBO to perform dynamic scoring for regulatory provisions than tax provisions. This difficulty is discussed in the following section.

legislation, it is incredibly unlikely that the chair would do so because Dodd-Frank is unpopular with Republicans. The danger here is that the party controlling the House could avoid getting a dynamic score for legislation that would have a devastating impact on the economy, and that danger is not lessened by giving a single member of the party that controls the House the power to ask for a dynamic score.

The trigger to require dynamic scoring should not depend on just a static score. First, using a static score trigger excludes bills like the hypothetical bill repealing Title II, which has a small static score and a potentially massive dynamic effects. Second, the focus on static score allows provisions to be shuffled around to avoid dynamic scoring where it would be unfavorable to legislation. Many of the early critiques focused on the possibility that dynamic scoring will be done in a partisan way. That possibility has not been realized, but there are still other dangers. If one party controls both houses, it can shuffle around provisions of legislation to fit bills with positive macroeconomic effects into major legislation, while keeping bills with negative macroeconomic effects in isolated legislation to avoid dynamic scoring.

2. Score Spending Provisions as well as Taxing

i. Reasons to Score Appropriations Bills and Other Spending Legislation

House Rule XIII and the 2016 Budget Resolution both excluded appropriations bills from the dynamic scoring requirement. Elmendorf's argument in favor of dynamic scoring is that macroeconomic effects should not be ignored for all legislation because CBO and JCT are responsible for providing the most accurate score possible. Ignoring likely dynamic effects introduces bias, and excluding some proposals but not others from dynamic scoring merely introduces bias of a different type. For that reason, dynamic scoring should be included for significant budget measures of all types, including appropriations.

Excluding appropriations may have a large impact on the budget process given that “[r]oughly a third of noninterest federal spending arises from annual appropriations by Congress.”⁶¹ However, to trigger the “major legislation” threshold, an appropriations bill would need to change baseline spending by .25% of GDP in a fiscal year. Very few appropriations bills would meet that threshold.⁶² The 2009 Stimulus Bill would have been a key exception to this rule. Because it was a large, one-time appropriation, it would have easily met the major legislation threshold. Dynamic scoring could have changed the size of and the rhetoric surrounding this fiscal legislation because it would have decreased its budget score by \$200 billion.⁶³ In order to allow scoring for most appropriations bills, the 2016 Budget Resolution would have needed to include a provision allowing legislators to request scores for bills that do not meet the major legislation threshold.

The practical effects of excluding appropriations bills are even more unclear given that appropriations bills have been used much less in recent years. Standalone appropriations bills have rarely been passed because of dysfunction in the budget process. The 2016 Budget Resolution appears to include omnibus bills, so in practice the most important spending bills are included. If the federal budget process returns to regular order, the exclusion of appropriations bills from dynamic scoring requirements will bias budget scoring in favor of spending cuts by excluding the macroeconomic harm of spending cuts and macroeconomic benefits of spending increases.

⁶¹ Elmendorf, *supra* note 3, at 121.

⁶² *Id.*

⁶³ *Id.* at 108. The static score for this legislation was \$800 billion, meaning the estimated macroeconomic effects would have offset 25% of the cost of the stimulus.

ii. The Particular Difficulty of Forecasting the Macroeconomic Impact of Spending Legislation

Certain fiscal policies are more difficult to measure than others. CBO Director Hall has stated that the macroeconomic effects of expenditures are more difficult to estimate than macroeconomic effects for tax provisions.⁶⁴ Definitive empirical research on the impact of tax cuts is sparse, but definitive research on the impact of spending legislation is almost nonexistent. The increased uncertainty of forecasting the macroeconomic effects for expenditures makes it more difficult to provide estimates for those provisions. However, Hall also stated that CBO is developing a way to do just that despite the limited conclusive empirical research on the subject.⁶⁵ Senator Angus King of Maine gestured at this difficulty in a 2016 Budget Committee hearing, stating that he believed the G.I. Bill was one of the most effective programs in United States history, but that it would be difficult to quantify the benefit. The difficulty of measuring the effect of spending legislation points toward an inherent problem with dynamic analysis: benefits that are difficult to demonstrate can be underrepresented in forecasts.

iii. Potential Distortions When Using Dynamic Scoring for Spending Provisions with only Long-Term Benefits

Some macroeconomic effects are more immediate than others. For example, CBO generally finds that legislation lowering the cost of labor has more immediate macroeconomic effects than lowering the cost of capital.⁶⁶ Because the budget window is only ten-years, macroeconomic effects that are forecasted to accrue more than ten years in the future will not be included for the purpose of PAYGO requirements. A bill subject to the dynamic scoring requirement that overhauls and improves the public education system, for example, would have

⁶⁴ *Hearing on Oversight of the Congressional Budget Office Before the S. Comm. on the Budget*, 114th Cong. 45:00 (2016) (statement of Keith Hall) <https://www.budget.senate.gov/oversight-of-the-congressional-budget-office-cbo>.

⁶⁵ *Id.*

⁶⁶ See the Section on long-term economic effects below.

large benefits in the future. Because most of the economic benefits would occur outside of the budget window, these benefits would not be incorporated into the bill's score even if the benefits were expected to be very large.⁶⁷ Given that certain social programs are investments in future productivity, the use of a ten-year budget window leads to a misrepresentation of the macroeconomic impact of certain legislation. Even if the macroeconomic effects could be accurately forecasted, most of them would be ignored because they would accrue outside the budget window.

3. CBO and JCT Must Have the Necessary Resources

Estimates should only include macroeconomic effects when CBO and JCT have the resources to do so. The reason is relatively straightforward: dynamic scoring is difficult, and agencies cannot do it accurately without the proper resources. Elmendorf expects that resources constraints would be most troublesome “for proposals that are being developed and amended quickly and for proposals regarding certain types of regulatory policy in which the estimators do not have significant expertise.”⁶⁸ These two situations present different problems, and will be discussed separately.

i. Resource Limitations

It is difficult to analyze whether CBO has the resources to do effective dynamic scoring, but there is no indication that CBO and JCT have been producing estimates too quickly or without adequate resources. House Rule XIII only requires CBO and JCT to provide macroeconomic estimates “to the greatest extent practicable.”⁶⁹ The same was true of the 2016 Budget Resolution. This arguably gives CBO and JCT the option of declining to provide an

⁶⁷ This example was suggested by Sen. Angus King in a question to CBO Director Hall during a 2016 Budget Committee Hearing. *Hearing on Oversight of the Congressional Budget Office Before the S. Comm. on the Budget*, 114th Cong. (2016).

⁶⁸ Elmendorf, *supra* note 3, at 93.

⁶⁹ S. Con. Res. 11, 114th Cong. § 3112(a) (2015).

estimate where it does not have the resources to produce one. More likely, CBO or JCT would ask for additional time to produce a macroeconomic estimate in this situation.

CBO Director Keith Hall shifted resources toward dynamic scoring in 2015 in order to meet CBO's new dynamic scoring responsibilities.⁷⁰ Hall requested a 2.4% budget increase for the agency for fiscal year 2017, arguing that dynamic scoring created additional staffing needs.⁷¹ At least \$391,000 of the requested increase would have gone toward health care and dynamic scoring forecasting.⁷² This is more an indication that CBO is doing its best to keep pace with dynamic scoring demands than proof that CBO is under-resourced. In testimony before the Senate Budget Committee, Hall stated that increased funding would help CBO provide more transparent estimates, but that CBO could "still function fine" without the increased funding.⁷³

There has not been an indication that CBO is unable to keep up with the current demands for dynamic estimates, but CBO will likely be called upon frequently in the coming years to produce even more of these estimates. The CBO did not have time to provide a macroeconomic estimate for the American Health Care Act in its initial budget score,⁷⁴ provided just a week after the bill was originally introduced. While the agency's inability to provide macroeconomic estimates in just a week is hardly an indication that it is under-resourced, it may indicate that CBO is willing to delay providing macroeconomic estimates when it is short on time. The strain

⁷⁰ Paul M. Krawzak, "For CBO, Dynamic Scoring is the Battle of Evermore," ROLL CALL (June 1, 2015) http://www.rollcall.com/news/for_cbo_dynamic_scoring_is_the_battle_of_evermore-242118-1.html

⁷¹ Dylan F. Moroses, "CBO Wants Additional Staff for Healthcare, Dynamic Scoring Work," TAXNOTES (Mar. 9 2016) <http://www.taxnotes.com/tax-notes-today/budgets/cbo-wants-additional-staff-healthcare-dynamic-scoring-work/2016/03/09/18279436?highlight=dynamic%20scoring>

⁷² *Fiscal Year 2016 CBO & Comptroller General Budget Hearing Before the S. Comm. on the Legislative Branch of the Comm. on Appropriations*, 114th Cong., (2016) (statement of Keith Hall, Director of the Cong. Budget Off.) <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51289-BudgetRequest2017.pdf>

⁷³ *Hearing on Oversight of the Congressional Budget Office Before the S. Comm. on the Budget*, 114th Cong. 44:30 (2016) (statement by Sen. Mike Enzi) <https://www.budget.senate.gov/oversight-of-the-congressional-budget-office-cbo>.

⁷⁴ CONG. BUDGET OFF., American Health Care Act, (Mar. 13, 2017) <https://www.cbo.gov/system/files/115th-congress-2017-2018/costestimate/americanhealthcareact.pdf>.

of dynamic scoring on CBO will only really be clear once the ACA repeal and tax reform debates have produced legislation that can actually be scored.

ii. Macroeconomic Effects too Difficult to Determine

Elmendorf explains that dynamic scoring should not be provided when it cannot be accurately produced. The House Rule XIII requirement that CBO and JCT provide estimates of macroeconomic effects, “to the greatest extent practicable” indirectly addresses this problem.⁷⁵

It will be interesting to see where CBO decides to draw the line on practicability. CBO has been willing to forego dynamic scoring when the timetable is too short and where there is too little information to determine macroeconomic effects decades into the future. However, CBO has not yet declined to offer a macroeconomic estimate for the ten-year budget window on the grounds that the effects were too difficult to determine. Tax reform could be a litmus test for CBO’s willingness to admit that an estimate would be too difficult to provide. Simple rate changes are well within CBO’s experience, but an overhaul to the tax system would be much more difficult. For example, the GOP’s proposed switch to a “destination based cash flow tax” would be much more complicated to score than tax proposals CBO has weighed in on in the past.

B. Other Potential Criteria

1. Transparency

Transparency is important for maintaining the legitimacy of CBO and JCT estimates. Elmendorf is more concerned with accuracy than transparency, possibly because he worked with the staff of both during his time as CBO Director and trusts their fairness. Elmendorf does not mention transparency as a critical component of dynamic scoring; rather, he lays the responsibility for transparency of estimates at the feet of Congress, saying:

⁷⁵ S. Con. Res. 11, 114th Cong. § 3112(b)(2) (2015) <https://www.congress.gov/114/bills/sconres11/BILLS-114sconres11enr.pdf>.

There are recurring calls for CBO and JCT to be more transparent regarding many aspects of their analyses. However, achieving greater transparency would require the agencies to allocate more resources to explaining existing estimates rather than producing new ones, and Congress has been reluctant to accept that trade-off.⁷⁶

This analysis makes it seem like CBO and JCT could not be more transparent in their estimates without more resources from Congress.

The importance of transparency in dynamic scoring depends on what one thinks CBO's mission is. Elmendorf's view is in line with CBO's parent statute, the Congressional Budget and Impoundment Control Act of 1974.⁷⁷ Public perception is second to CBO's animating mission of providing accurate information to Congress. The same Act empowers JCT to score tax measures and describes that responsibility in similar terms.⁷⁸ This vision of CBO and JCT's purpose may not adequately respond to the political importance of budget scoring. Given that CBO and JCT consistently weigh in on deeply contentious issues and that dynamic scoring is already deeply contentious, it may be important for CBO and JCT to transparently explain their analyses whenever they provide a score. The urgency of transparency increases as the controversy surrounding a piece of legislation increases.

In line with Elmendorf's view of CBO and JCT's mission, those agencies have rarely provided detailed quantitative information about specific dynamic budget scores. This can make it difficult to tell what effect different assumptions and modeling conventions had on a given estimate. On the other hand, CBO has provided detailed information about the types of models they use, qualitative information concerning the inputs into those models,⁷⁹ and sometimes about

⁷⁶ Elmendorf, *supra* note 3, at N .5.

⁷⁷ 2 U.S.C. § 602(a) (2012) ("It shall be the primary duty and function of the Office to provide to the Committees on the Budget of both Houses information which will assist such committees in the discharge of all matters in their jurisdictions").

⁷⁸ 2 U.S.C. § 601(f) (2012).

⁷⁹ CONG. BUDGET OFF., CBO'S METHOD FOR ESTIMATING POTENTIAL OUTPUT: AN UPDATE (August 2001) <https://www.cbo.gov/sites/default/files/107th-congress-2001-2002/reports/potentialoutput.pdf> (describing CBO's

quantitative detail related to the value of certain variables in their models.⁸⁰ JCT has also provided information about its models and some of the inputs, but not with as much detail as CBO. JCT typically provides numerical values for some of its key macroeconomic assumptions on the last page of its budget score,⁸¹ but it has not produced as many supplementary documents explaining its macroeconomic analysis methods.

Perhaps in light of the partisan concerns surrounding the adoption of dynamic scoring in the 2016 Budget Resolution, CBO Director Keith Hall promised transparency in dynamic scores when he took his position.⁸² Hall's promise of transparency is understandable given that many critics of dynamic scoring have focused on how it can be abused to for partisan reasons.⁸³ Some of those critics even predicted that Hall would enable Republicans to use dynamic scoring to manipulate budget scores to their advantage. Hall has largely lived up to his promise of transparency, at least when analyzing controversial and highly partisan legislation. As will be discussed below, the ACA Repeal budget score provided much more detail and transparency into the budget scoring process than any other effort by CBO or JCT. In addition to providing an uncharacteristically lengthy report explaining the score, CBO published a working paper

Solow growth model); CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>.

⁸⁰ See, e.g., "How the Supply of Labor Responds to Changes in Fiscal Policy," Cong. Budget Off. 4 (October 2012) <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/43674-laborsupplyfiscalspolicy.pdf> (Providing the labor elasticities that are entered into CBO's models). The fact that CBO does not do this more often has led to criticism over their transparency.

⁸¹ See, e.g., JOINT COMMITTEE ON TAX'N, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF THE 'TAX RELIEF EXTENSION ACT OF 2015' 10 (Aug. 4, 2015). <https://www.jct.gov/publications.html?func=startdown&id=4807>

⁸² Hillary Flynn, "Blackburn letter on Clinton Foundation ignites squabble – R&D bill gets death sentence from White House – Ryan: Carried interest safe for now," POLITICO MORNING TAX <http://www.politico.com/tipsheets/morning-tax/2015/05/blackburn-letter-on-clinton-foundation-ignites-squabble-r-d-bill-gets-death-sentence-from-white-house-ryan-carried-interest-safe-for-now-212543>

⁸³ Rep. Chris Van Hollen & Rep. Louise Slaughter, "'Dynamic Scoring' Cooks the Books," POLITICO, (Jan. 6, 2015) <http://www.politico.com/magazine/story/2015/01/dynamic-scoring-cooks-the-books-113977>; Janelle Bouie, "Tax Cuts Uber Alles: How Republicans plan to cook the books if they win in November," SLATE, (Oct. 6, 2014) http://www.slate.com/articles/news_and_politics/politics/2014/10/paul_ryan_wants_dynamic_scoring_for_tax_policy_republicans_want_to_change.html.

describing how it measured the labor market effects of ACA Repeal.⁸⁴ Senator Mike Enzi, Chairman of the Senate Budget Committee, applauded Hall’s dedication to transparency in a 2016 hearing on the oversight of the CBO.⁸⁵ In that same hearing, Hall stated that the CBO would seek to provide even more transparency with a focus on its macroeconomic estimates.⁸⁶ Hall has sought to implement best practices for describing estimates; under Hall’s leadership, CBO has produced supplemental reports explaining estimates and has also added a dynamic scoring analysis section to the CBO website.⁸⁷

House Rule XIII does not perform very well on the transparency criterion. CBO and JCT are required to provide “an indication of critical assumptions and the source of data underlying” its macroeconomic estimates for major legislation.⁸⁸ This is more information than is required for most static scoring, but it is vague enough that CBO and JCT can meet this requirement by merely providing a brief qualitative discussion of the important factors in the dynamic score. JCT often does this in a couple of paragraphs. If Elmendorf is right that Congress is responsible for transparency in budget scores, House Rule XIII does little to advance the transparency of scores.

2. Robustness to Gaming

Resistance to manipulation is an implicit criterion for Elmendorf. The goal of dynamic scoring is to make better informed fiscal decisions, and the use of budget gimmicks undermines

⁸⁴ See, generally, EDWARD HARRIS & SHANNON MOK, CONG. BUDGET OFF., HOW CBO ESTIMATES THE EFFECTS OF THE AFFORDABLE CARE ACT ON THE LABOR MARKET (Dec. 2015) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/51065-ACA_Labor_Market_Effects_WP.pdf.

⁸⁵ *Hearing on Oversight of the Congressional Budget Office Before the S. Comm. on the Budget*, 114th Cong. 28:45. (2016) (statement by Sen. Mike Enzi) <https://www.budget.senate.gov/oversight-of-the-congressional-budget-office-cbo>.

⁸⁶ *Id.* at 38:45.

⁸⁷ *Id.* at 52:00 (testimony of Keith Hall). Hall also mentioned that CBO has been evaluating its own budget projections, but it has not done so for its macroeconomic estimates for proposed legislation. This would be much more difficult since many of the bills evaluated are not passed, and it is difficult to separate macroeconomic effects of legislation from other factors affecting the economy.

⁸⁸ S. Con. Res. 11, 114th Cong. § 3112(b)(2) (2015).

that goal. There are several ways to game the federal budget process, including the manipulation of the budget window which was discussed above in the section on Title II of the Dodd-Frank Act. As that section demonstrated, House Rule XIII fails to deter the use of gimmicks. This section will discuss how dynamic scoring affects the use of two additional budget gimmicks: extending the budget window and the use of a current policy budget baseline.

i. Extended Budget Window

Congress typically uses a ten-year budget window for reconciliation purposes, but the budget window can be as long or as short as Congress chooses. A Congress that is concerned about violating the Byrd Rule by increasing the budget deficit outside the budget window can increase the length of the budget window. This possibility has been suggested for the purposes of passing long-term tax cuts that are not revenue neutral.⁸⁹

The dynamic scoring requirement in House Rule XIII makes the most sense when using a ten-year budget window. It requires a point estimate of macroeconomic effects inside the budget window and a “qualitative assessment” of macroeconomic effects “in the 20-fiscal year period beginning after the last fiscal year of the most recently agreed concurrent resolution on the budget.”⁹⁰ Using a ten-year budget window, the first decade following the legislation will get a full dynamic score, while the second and third decades have a qualitative assessment of macroeconomic effects.

If the budget window is twenty or thirty years long, it makes much less sense to require a point estimate for macroeconomic effects inside the budget window. Macroeconomic effects are already difficult to determine inside a ten-year budget window, and the accuracy of

⁸⁹ Richard Rubin, “One Move That Could Solve the GOP’s Tax-Cut Math Problem (Maybe),” WALL ST. J. (May 1, 2017) <https://www.wsj.com/articles/one-move-that-could-solve-the-gops-tax-cut-math-problem-maybe-1493660746>

⁹⁰ H.R. Res. 5, 114th Cong. § 8(c)(1) (2015).

macroeconomic forecasting decreases as you move further into the future. This is likely one reason why House Rule XIII only requires a qualitative analysis for the two decades following the budget window. JCT and CBO would be permitted not to provide a score because House Rule XIII only requires a dynamic estimate “to the extent practicable.”⁹¹ In past scores, JCT has indicated that it may be unable to provide a macroeconomic estimate that forecasts multiple decades into the future.⁹² However, it is unclear how JCT would handle this situation. If it chose to offer a dynamic score for a twenty- or thirty-year budget window, it would likely do so with much less accuracy than Elmendorf and other budget experts expected when they initially supported the use of dynamic scoring.

ii. Current Policy Budget Baseline⁹³

Congress does not have to rely solely on expected revenue under current law when drafting the budget resolution, which sets the base revenue levels for reconciliation purposes.⁹⁴ Instead, Congress can use a budget gimmick called the “current policy baseline.” This gimmick allows Congress to assume that certain provisions that are set to expire before the end of the budget window are going to be extended indefinitely. For example, Senator Portman suggested that tax reform use a budget baseline that assumes bonus depreciation, which is set to expire

⁹¹ *Id.* at § 8(a).

⁹² Bonus Depreciation Score at V.A

⁹³ This section is based on an idea expressed in a tweet by Marc Goldwein, Vice President of the Committee for a Responsible Federal Budget, <https://twitter.com/MarcGoldwein/status/857938499462475776>.

⁹⁴ “Lowering the Bar for ‘Revenue Neutral’ Tax Reform,” COMMITTEE FOR A RESPONSIBLE FED. BUDGET (Jan. 3, 2017) <http://www.crfb.org/blogs/lowering-bar-revenue-neutral-tax-reform>

before the end of the budget window, will remain permanent.⁹⁵ The Better Way proposal put together by the House GOP made the same assumption.⁹⁶

If Congress were to assume that bonus depreciation was permanent for the purposes of the budget resolution, JCT may still include the dynamic effects of making bonus depreciation permanent in its budget score. This would lead to a score that ignores the static revenue lost by bonus depreciation and includes the macroeconomic benefits of bonus depreciation. This result would make the budget score even more misleading because of the incorporation of dynamic effects, which is counter to the stated purposes of dynamic scoring. Without more guidance on how JCT should handle this type of situation, the use of dynamic scoring can exacerbate the distortions created by this budget gimmick.

IV. How is Dynamic Scoring Done?

CBO and JCT use similar techniques to calculate macroeconomic effects. Generally speaking, forecast of short-term effects are driven by Keynesian economics and forecasts of long-term effects are driven by neoclassical economics. This means that short-term economic output is determined by the demand for goods and services, while the long-term economic output is determined by the quality and quantity of labor and capital, and “the efficiency with which

⁹⁵ “Sen. Portman: Pro-Growth tax reform is a way to increase wages,” MSN 3:00 (April 27, 2017) <http://www.msn.com/en-us/money/generalmoney/sen-portman-pro-growth-tax-reform-is-a-way-to-increase-wages/vp-BBArmRo> (“If you start with a policy baseline meaning you assume . . . bonus depreciation is going to be in the code permanently which by the way is very likely and that’s probably the right thing to do policy-wise . . . you have some more headroom”).

⁹⁶ “A Better Way: Our Vision for a Confident America: Tax,” 16 (June 24, 2016) https://abetterway.speaker.gov/_assets/pdf/ABetterWay-Tax-PolicyPaper.pdf ; “Lowering the Bar for ‘Revenue Neutral’ Tax Reform,” COMMITTEE FOR A RESPONSIBLE FED. BUDGET (Jan. 3, 2017). <http://www.crfb.org/blogs/lowering-bar-revenue-neutral-tax-reform>.

labor and capital are used to produce goods and services.”⁹⁷ The line between short-term and long-term time periods is blurry, and “[e]conomic theory does not offer much guidance for modeling the year-by-year effects of changes in fiscal policies between the short-term and the long-term.”⁹⁸ In the transition years between short-term and long-term, “CBO uses a weighted average of the estimated short-term effects of changes in fiscal policies and the estimated long-term effects of changes in fiscal policies.”⁹⁹

CBO has been producing estimates that incorporate macroeconomic effects for many years, just not for pending legislation. Before 2015, the CBO typically estimated macroeconomic feedback for the President’s Budget, annual long-term budget outlook, and other “illustrative fiscal policy scenarios.”¹⁰⁰ JCT has been modeling macroeconomic effects since 2003, when the House of Representatives began requiring JCT to provide a “macroeconomic impact analysis” for legislation that would amend the Internal Revenue Code.¹⁰¹ CBO and JCT value continuity, and are using models similar to those they used when they first started performing macroeconomic analysis.

This section will provide an overview of the tools used in macroeconomic analysis generally, discuss the models used by CBO and JCT, and discuss the strengths and weaknesses

⁹⁷ FELIX REICHLING & CHARLES WHALEN, CONG. BUDGET OFF., ASSESSING THE SHORT-TERM EFFECTS ON OUTPUT OF CHANGES IN FEDERAL FISCAL POLICIES 1-2 (May 2012) https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/workingpaper/WorkingPaper2012-08-Effects_of_Fiscal_Policies_1.pdf

⁹⁸ CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 11 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>

⁹⁹ *Id.*

¹⁰⁰ Wendy Edelberg, “Dynamic Analysis at CBO” CONG. BUDGET OFFICE 7 (August 14, 2015) <https://www.cbo.gov/publication/51286>

¹⁰¹ H.R. DOC. NO. 112-0161, House Rule XIII § (3)(h)(2)(A)(i) at 643. <https://www.gpo.gov/fdsys/pkg/HMAN-113/pdf/HMAN-113.pdf>.

of those models.¹⁰² Short-term and long-term effects are estimated differently, so this section will evaluate the models for both.

A. Short-term Effects

1. How Short-Term Effects are Modeled

CBO and JCT forecast short-term macroeconomic effects of proposed legislation by estimating its impact on aggregate demand and labor supply. Increasing government spending injects more money into the economy and creates positive macroeconomic effects by encouraging people to spend more in the short-term than they would otherwise. Elmendorf points out that including dynamic effects in the analysis of the economic stimulus package in the wake of the financial crisis would have cut the estimated budgetary cost of the 2009 stimulus bill by \$200 billion.¹⁰³ That large effect comes from the impact of using government spending to increase aggregate demand when the economy is underperforming.

i. Aggregate Demand

The effect of legislation on aggregate demand can be broken into direct effects and indirect effects. Direct effects, also known as “immediate or ‘first-round’ effects,” refer to the increase in spending that results from “changes in purchases of goods and services by federal agencies and by the people and organizations that receive federal payments or pay federal taxes.”¹⁰⁴ The size of direct effects will depend on what people do with the extra money they

¹⁰² For a more detailed look at CBO’s method of projecting potential output, *see* CONG. BUDGET OFF., CBO’S METHOD FOR ESTIMATING POTENTIAL OUTPUT: AN UPDATE (Aug. 2001)

<https://www.cbo.gov/sites/default/files/107th-congress-2001-2002/reports/potentialoutput.pdf>

¹⁰³ Elmendorf, *supra* note 3, at 108. The static score for this legislation was \$800 billion, meaning the estimated macroeconomic effects would have offset 25% of the cost of the stimulus.

¹⁰⁴ CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 2 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>

receive as a result of the legislation.¹⁰⁵ If tax cuts or government spending result in a given person having money that they would not have otherwise, they will spend a portion and save a portion. The more they spend, the more that aggregate demand increases. The indirect effects are the second-order demand effects resulting from the direct effects, and can either enhance or offset direct effects.¹⁰⁶ One example of an indirect effect that enhances a direct effect is if increased “spending prompts companies to increase investment to boost their future production.”¹⁰⁷

Indirect effects are expressed as a demand multiplier, which is “defined as the total change in gross domestic product for each dollar of direct effect on demand.”¹⁰⁸ CBO selects the demand multiplier based on the consensus of the economic literature. Modeling demand multipliers is key to the production of accurate short-term economic models. CBO uses a range of demand multipliers that change depending on the expected “degree of resource utilization in the economy and response of monetary policy” to the proposed legislation.¹⁰⁹ The response in monetary policy to a fiscal policy depends on the current state of the economy. If the economy is underperforming its potential output, the Federal Reserve will be neutral to the fiscal policy and CBO’s expected demand multiplier will range from .5 to 2.5 over the year in which the policy is adopted.¹¹⁰ If the economy is already performing well, CBO will use a demand multiplier range from .4 to 1.9.¹¹¹ This difference reflects, in part, the expectation that the Federal Reserve will

¹⁰⁵ FELIX REICHLING & CHARLES WHALEN, CONG’L BUDGET OFF. ASSESSING THE SHORT-TERM EFFECTS ON OUTPUT OF CHANGES IN FEDERAL FISCAL POLICIES 2 (May 2012) https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/workingpaper/WorkingPaper2012-08-Effects_of_Fiscal_Policies_1.pdf

¹⁰⁶ *Id.*

¹⁰⁷ *Id.* at 3.

¹⁰⁸ *Id.* at 3.

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 4.

¹¹¹ *Id.*

increase interest rates in response to the increased activity resulting from the change in fiscal policy.

ii. Labor Market Effects

The impact of legislation on the labor supply in the short-term depends on the current state of the economy. If the economy is underperforming its potential output, fiscal policy that injects money into the economy will have a large effect on overall output. The same injection of money would be less effective if the economy was already producing at its potential output.

2. Debate over the Merits of Including Short-Term Effects

There is a debate over whether short-term effects should be considered in some cases. Tax reform is perhaps the best example. Many argue that tax reform has such important long-term effects that its passage should not be impacted by short-term effects, which will vary widely based on the current state of the economy. As CRS economist Jane Gravelle puts it:

The most basic argument is that changes to the tax code shouldn't depend on fiscal timing, as tax changes are hard to reverse. A permanent tax cut should, it may be argued, not be viewed more favorably because it was enacted in a recession.¹¹²

This is especially important given the impact of reconciliation on fiscal policy. Short-term effects will dominate the economic impact in the early portion of the ten-year budget window, which could lead to a net deficit within the ten-year budget window. Even tax reform that is revenue neutral and creates long-term economic growth could be sunk if it reduces aggregate demand in the short-term. This would only matter if the tax reform proposal did not have a filibuster-proof majority in the Senate, but that is a likely contingency given the current composition of the chamber.

¹¹² JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 15 (Jan. 24, 2015)

http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

In addition, including short-term effects requires assumptions about monetary policy, which some economists view as inappropriate.¹¹³ CBO and JCT make assumptions about monetary policy even for long-term effects in certain situations,¹¹⁴ meaning CBO and JCT would likely find this argument particularly ineffective.

B. Long-Term Effects

CBO and JCT primarily use two types of models to perform long-term macroeconomic analysis: the Solow Growth Model and Life Cycle Growth Model.¹¹⁵ JCT sometimes uses a third model called a “Dynamic, Stochastic General Equilibrium Model.”¹¹⁶ This section will describe the Solow Growth Model in the greatest detail because it is the most frequently used.¹¹⁷

1. Solow Growth Model

CBO has been using a Solow Growth Model for over fifteen years,¹¹⁸ and this model has been the CBO’s workhorse over that period.¹¹⁹ JCT also uses a Solow Growth Model,¹²⁰ though it calls that model a Macroeconomic Equilibrium Growth Model (MEG)¹²¹ because it includes short-term stimulus effects.¹²²

¹¹³ *Id.*

¹¹⁴ *See, e.g.*, the Bonus Depreciation section below.

¹¹⁵ Elmendorf, *supra* note 3, at 98.

¹¹⁶ Thomas A. Barthold, “Macroeconomics and Revenue Estimating at the Joint Committee on Taxation,” ABA TAX TIMES 7 (October 2015).

¹¹⁷ Elmendorf, *supra* note 3, at 125.

¹¹⁸ *See* CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf> (Describing CBO’s Solow Growth Model and referring readers to a CBO explanation of the model from 2001 for more detail).

¹¹⁹ CONG. BUDGET OFF., CBO’S METHOD FOR ESTIMATING POTENTIAL OUTPUT: AN UPDATE 3 (Aug. 2001) <https://www.cbo.gov/sites/default/files/107th-congress-2001-2002/reports/potentialoutput.pdf>

¹²⁰ Elmendorf, *supra* note 3, at 98.

¹²¹ Thomas A. Barthold, “Macroeconomics and Revenue Estimating at the Joint Committee on Taxation,” ABA TAX TIMES 6 (October 2015).

¹²² JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 8 (Jan. 24, 2015) http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

Solow Growth Models are the simplest to set up and have solid empirical support relative to other methods of macroeconomic forecasting.¹²³ In a Solow Growth Model:

[O]utput depends on the amount and quality of the labor that is employed and the stock of productive capital (such as factories, vehicles, and computers that support future production and consumption) available for use in the economy, which, in turn, depend on decisions regarding work, saving, and investment.¹²⁴

A simplified version of a Solow Growth Model looks like this: Overall Output = $A K^a L^b$, where “a” is the elasticity of substitution of capital, “b” is the elasticity of substitution of labor, “K” is the amount of capital, “L” is the amount of labor in hours, and A is the productivity factor. A high productivity factor would mean that the economy generates a lot of output for each unit of labor and capital. For example, an economy with advanced technology typically has a relatively high productivity factor because technology allows for the creation of more output with the same level of capital and labor. Elasticity of substitution of labor refers to the ability to substitute a unit of labor for a unit of capital. The elasticity of substitution of capital is the ability to substitute a unit of capital for a unit of labor.

CBO creates a macroeconomic estimate by calculating the impact of legislation on overall production. The Solow Growth Model, because it determines output based on labor and capital, forecasts macroeconomic effects by measuring the impact of legislation on those two variables. A cut in the marginal tax on labor, for example, will lead to increased economic output by increasing L.

¹²³ *Id.* at 9.

¹²⁴ CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 2 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>

i. Labor Market Effects

CBO and JCT forecast the effect of a given bill on the labor market by determining the likely substitution effects and income effects. Substitution effect is the tendency of people to work less when the marginal tax rate increases. If tax rates increase for an hourly worker, their take-home pay from an additional hour of work will decrease, encouraging them to work less.¹²⁵ Income effect is the tendency for people to work more when their average tax rate increases. If tax rates increase for an hourly worker, they will need to work more hours to maintain their previous income level. With typical tax increases, substitution effects and income effects counteract one another, with substitution effects typically being larger. CBO's current central estimate for the substitution elasticity of low-income primary earners is .22, while the central income elasticity is .05.¹²⁶ CBO's estimates for substitution and income elasticity are based on the consensus of empirical research and change over time. Different income cohorts have different sensitivities to the income and substitution effects, with low-income earners tending to be more sensitive to both.

ii. Effects on Capital

Generally speaking, the country's overall production will go up if there is more money being invested in the country. Decreasing tax on capital should lead to increased investment, thereby growing the economy. Growth models try to estimate the positive effects of increased investment. When evaluating tax proposals, effects on capital tend to play a smaller role in

¹²⁵ CONG. BUDGET OFF., HOW THE SUPPLY OF LABOR RESPONDS TO CHANGES IN FISCAL POLICY 1 (Oct. 2012) <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/43674-laborsupplyfiscalpolicy.pdf>

¹²⁶ EDWARD HARRIS & SHANNON MOK, CONG. BUDGET OFF., HOW CBO ESTIMATES THE EFFECTS OF THE AFFORDABLE CARE ACT ON THE LABOR MARKET 2-3 (Dec. 2015) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/51065-ACA_Labor_Market_Effects_WP.pdf.

dynamic analysis than labor market effects because capital stock tends to accumulate slowly in response to tax reform.¹²⁷ Gravelle explained this as follows:

A tax change affects the capital stock by affecting savings or investment, which is typically only 2% or 3% of the capital stock. Even if the savings rate increased by 50% in the first year, the capital stock would only increase by about 1%. Outside the budget window, capital accumulation may become more important and, for some reforms, can dominate the effects on labor.¹²⁸

Gravelle's explanation does not reflect the views of all economists, but it seems in line with JCT and CBO's assumptions about the accumulation of capital. JCT and CBO's assumption that changes in the savings rate cause capital to accumulate slowly have led to dynamic scores that have disappointed conservative economists.¹²⁹

iii. Crowding Out

When the federal government borrows money, private investors purchase the debt issued by the government. For this reason, CBO argues that an increase in federal borrowing "displaces capital that would otherwise be used for private investment."¹³⁰ This decrease in capital available for private investment causes the economy to grow more slowly in the long-term. The size of crowding out effects on the economy "depends on how much government borrowing is from foreign sources."¹³¹ Models often have different assumptions about the economy, which lead to different estimates of the magnitude of crowding out effects. For example, some models assume a closed economy for the benefit of simplicity, which can lead to huge estimated crowding out

¹²⁷ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 3 (Jan. 24, 2015)

http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

¹²⁸ *Id.*

¹²⁹ See Bonus Depreciation Section below.

¹³⁰ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 5 (Jan. 24, 2015)

http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

¹³¹ *Id.* at 5.

effects. In a 2015 report on tax reform, the Republican staff of the Senate Finance Committee identified crowding out as a reason to reduce the budget deficit.¹³²

The Tax Foundation argues that CBO drastically overstates the importance of crowding out on economic output.¹³³ The disagreement centers on the availability of foreign investment money. The Tax Foundation points to the views of many economists that foreign investors have such a great appetite for United States government bonds that increased government borrowing has not increased interest rates. This points to a trivial crowding out effect.¹³⁴ Assumptions about crowding out played a large role in CBO's score of legislation making bonus depreciations permanent, discussed in section V (A) of this paper.

Crowding out is partially offset by two macroeconomic factors: increased private savings and increased productivity per unit of capital.¹³⁵ CBO believes that increased federal borrowing increases private savings in multiple ways. For example, federal borrowing tends to increase interest rates, "which boosts the return on saving."¹³⁶ The first portion of the statement seems a little suspect in the current world, given that U.S. government borrowing is at an all-time high and interest rates are very low. While there is a theoretical basis to believe there is a link, both liberal and conservative economists seem skeptical about the link between interest rates and the

¹³² REPUBLICAN STAFF, S. COMM. ON FIN., 114TH CONG., "COMPREHENSIVE TAX REFORM FOR 2015 AND BEYOND," 81-82 (December 2014) <https://www.finance.senate.gov/imo/media/doc/Comprehensive%20Tax%20Reform%20for%202015%20and%20Beyond5.pdf>

¹³³ Alan Cole, "The Deficit, Interest Rates, and Growth," TAX FOUNDATION 6-8 (Mar. 8, 2016)

<https://taxfoundation.org/deficit-interest-rates-and-growth/>

¹³⁴ *Id.* at 7-8.

¹³⁵ CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 7 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>

¹³⁶ *Id.* The other two listed reasons are that people may increase their savings in anticipation of higher taxes in the future to pay off the increased federal borrowing and that "[t]he policies that give rise to deficits (such as tax cuts or increase in government transfer payments) put more money in private hands, some of which is saved." *Id.*

budget deficit.¹³⁷ The stability of interest rates in spite of increased borrowing may indicate that crowding out is not occurring at all.¹³⁸

2. Overlapping Lifecycle Growth Model

Life cycle growth models forecast macroeconomic effects by modeling the decisions of stylized individuals, referred to as agents, who “allocate leisure and consumption within periods across time.”¹³⁹ As with the Solow Growth Model, supply of labor and capital are largely determinative of overall output. The agents in an OLG Model differ in age and wealth, and therefore respond differently to certain fiscal policies. This type of model, known as an intertemporal growth model, requires assumptions about the agents whose behavior is being measured and about the future fiscal policies of the government. Elmendorf points out that the assumptions built into these models amount to shortcomings that do not exist with the Solow Growth Model.¹⁴⁰ For this reason, Elmendorf prefers the Solow Growth Model,¹⁴¹ which CBO seems to agree with.¹⁴²

There are several problems with OLG models. First, the agents in an intertemporal model are also assumed to have perfect foresight about the government’s fiscal policy. Without this assumption, it would be difficult to model the agents’ individual responses to a given fiscal policy. Elmendorf demonstrates that necessity as follows:

¹³⁷ Alan Cole, “The Deficit, Interest Rates, and Growth,” TAX FOUNDATION (Mar. 8, 2016) <https://taxfoundation.org/deficit-interest-rates-and-growth/>; Paul Krugman, “Deficits and Interest Rates,” NY TIMES (Aug. 14, 2009) <https://krugman.blogs.nytimes.com/2009/08/14/deficits-and-interest-rates/>; but see Edward Nelson & Jason J. Buol, “Budget Deficits and Interest Rates: What is the Link,” FED. RESERVE BANK OF ST. LOUIS (2004) <https://www.stlouisfed.org/publications/central-banker/summer-2004/budget-deficits-and-interest-rates-what-is-the-link>.

¹³⁸ *Id.*

¹³⁹ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 6 (Jan. 24, 2015)

http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

¹⁴⁰ Elmendorf, *supra* note 3, at 125.

¹⁴¹ *Id.*

¹⁴² Keith Hall, Remarks at Heritage Foundation event titled “How CBO Will Implement the New Dynamic Scoring Budget Rule Recently Adopted by Congress” (June 17, 2015) <http://cf.heritage.org/events/2015/06/how-cbo-will-implement-the-new-dynamic-scoring-budget-rule-recently-adopted-by-congress>.

If forward-looking people expected that federal debt would rise relative to output without limit, they would not hold federal bonds, so the models can be used only to analyze sustainable changes in policies. Therefore, when CBO and JCT use their life cycle models to analyze a proposal that would increase deficits indefinitely, the agencies incorporate future policy changes not specified in the proposal to offset the deficit increases. That situation is awkward, because a key principle of budget estimates is that the agencies take proposals as written and do not predict future legislation.¹⁴³

Thus, “[i]ntertemporal models cannot indefinitely have deficits or surpluses,” which requires the modeler to build in assumptions about how the government will close the budget deficit.¹⁴⁴

Elmendorf states that CBO has countered this uncertainty by “report[ing] results for multiple alternative changes.”¹⁴⁵

Elmendorf argues that these assumed changes can lead to overly optimistic scores because, “if a proposal would increase deficits indefinitely, which would have harmful economic effects, the inclusion...of additional policy changes not specified in the proposal might make the proposal look better than it really is.”¹⁴⁶ Essentially, assuming that Congress will fix the deficit in the future makes unfunded tax cuts look more sustainable than they are. While this seems to bring a lot of uncertainty into macroeconomic estimates, Keith Hall, Director of the CBO, states that assumptions about how the government will close the deficit do not significantly affect macroeconomic predictions within the budget window as long as the policies to close to the budget deficit are placed twenty-five years into the future.¹⁴⁷

CBO’s OLG model also assumes that agents do not worry about the welfare of their children. Agents will seek to save enough to meet their own needs, but do not save additional

¹⁴³ Elmendorf, *supra* note 3, at 124-125.

¹⁴⁴ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 6 (Jan. 24, 2015)

http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

¹⁴⁵ Elmendorf, *supra* note 3, at 125.

¹⁴⁶ *Id.*

¹⁴⁷ Keith Hall, Remarks at Heritage Foundation event titled “How CBO Will Implement the New Dynamic Scoring Budget Rule Recently Adopted by Congress” (June 17, 2015) <http://cf.heritage.org/events/2015/06/how-cbo-will-implement-the-new-dynamic-scoring-budget-rule-recently-adopted-by-congress>.

money to provide for the needs of their children. CBO explains the result of this assumption, stating “older generations know that they could retire or die before a policy change occurs and tend to be less responsive to future policy changes than younger generations are.”¹⁴⁸ This stylized assumption reflects a basic truth that, for example, individuals with adequate retirement savings will be less likely to work more in response to a change in marginal tax rates. It likely overstates the size of this effect by ignoring the fact that individuals are motivated to provide a safety net to their own children, even in old age.

Other economists have criticized intertemporal models for their lack of empirical support.¹⁴⁹ Gravelle points out that the agents in intertemporal models “look ahead and base their current savings on all future periods in their life...[b]ut many individuals either can’t or won’t behave that way.”¹⁵⁰ OLG models are more difficult to develop, maintain, and use than Solow Growth Models. JCT currently leases its OLG model from a privately owned macroeconomic consultancy firm.¹⁵¹

C. Determining and Reporting the Uncertainty of Macroeconomic Effects

Forecasting macroeconomic effects is difficult and imprecise, and no single model can account for every macroeconomic effect that a bill could have. CBO and JCT use multiple models and run those models multiple times with differing assumptions. Before the 2016 Budget Resolution, “CBO generally report[ed] its analyses using ranges and central estimates,” where

¹⁴⁸ CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 11 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>.

¹⁴⁹ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 19 (Jan. 24, 2015) http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf

¹⁵⁰ *Id.*

¹⁵¹ Thomas A. Barthold, “Macroeconomics and Revenue Estimating at the Joint Committee on Taxation,” ABA TAX TIMES N. 2 (October 2015) (JCT “currently leases a version of [the OLG] model Tax Policy Advisors, LLC). Tax Policy Advisors, LLC is owned by John Diamond, the economist who developed the OLG model.

the central estimate is defined as “the effects predicted when key inputs to CBO’s analyses are at the midpoint of their ranges.”¹⁵² CBO’s practice of reporting multiple outcomes has not been extended to dynamic scoring for proposed legislation. Instead, CBO tends to report only its assumptions and a central estimate.¹⁵³ JCT has provided similarly limited information in its scores for proposed legislation.¹⁵⁴

CBO and JCT may be providing less information on the range of potential outcomes for a few reasons. First, CBO and JCT typically do not provide a range when scoring proposed legislation. Even traditional scoring methods require assumptions about behavioral responses to legislation, and CBO and JCT typically do not provide ranges in those situations.¹⁵⁵ Second, it may be more work to provide a range of potential outcomes, which would make it burdensome to provide a range of outcomes for every piece of proposed major legislation. Third, the central estimate is the most important part of a budget score, since it impacts whether a bill can be passed. Providing a range of outcomes is more important for a budget projection, which is meant to depict the nation’s fiscal health.

¹⁵² CONG. BUDGET OFF., HOW CBO ANALYZES THE EFFECTS OF CHANGES IN FEDERAL FISCAL POLICIES ON THE ECONOMY 3 (Nov. 2014) <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf>.

¹⁵³ See, e.g., CONG. BUDGET OFF., BUDGETARY AND ECONOMIC EFFECTS OF REPEALING THE AFFORDABLE CARE ACT 20-22 (June 2015) (discussing several sources of uncertainty in the estimate, including several macroeconomic effects, but not providing any estimate other than the central estimate) <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50252-effectsofacarepeal.pdf>.

¹⁵⁴ See, e.g., JOINT COMMITTEE ON TAX’N, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, ‘BONUS DEPRECIATION MODIFIED AND MADE PERMANENT,’ 3 (October 27, 2015) (explaining assumptions about monetary policy expected in response to bonus depreciation legislation, but not providing estimates for other possible reactions by the Federal Reserve).

¹⁵⁵ See, e.g., CONG. BUDGET OFF., H.R. 4173 DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT (June 28, 2010) <https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/costestimate/hr41731.pdf> (providing only a single estimate for the budgetary impact of the Dodd-Frank Act); but see, CONG. BUDGET OFF., H.R. 4872, RECONCILIATION ACT OF 2010 (FINAL HEALTH CARE LEGISLATION)12 (Mar. 20, 2010) <https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/costestimate/amendreconprop.pdf> (providing a central estimate for the ACA’s reduction of the federal deficit, but also noting that the total effect within the budget window was “in a broad range between one-quarter and one-half percent of gross domestic product.”)

V. Examples of Dynamic Scoring

This section discusses some illustrative examples of dynamic scoring by JCT and CBO. JCT and CBO have both been providing dynamic estimates for many years, so this section does not cover them all. Elmendorf mentioned some of these estimates in his paper, and this paper attempts to build on that by discussing the critical components of those estimates and the critical response.

A. Bonus Depreciation

Businesses deduct expenses such as salaries in the tax year in which they occur, but are required to spread out deductions for the purchase of various types of property over a period of years. This process, known as depreciation, is meant to reflect the fact that certain types of property lose value over time. The exact depreciation time period is determined by the type of property. Bonus depreciation allows businesses to deduct a greater percentage of the price of the property in the year of purchase.¹⁵⁶ Bonus depreciation has been allowed on and off since 2002.¹⁵⁷ Bonus depreciation is considered a huge benefit to businesses, because it allows companies to take deductions earlier, and many believe it provides a great benefit for the economy by reducing the cost of capital investment.

In 2014, legislation was introduced that would make bonus depreciation permanent, allowing businesses to deduct 50% of the cost of property in the year of purchase.¹⁵⁸ CBO and JCT's score found that the bill would cost the government \$280 billion in revenue on a static

¹⁵⁶ GARY GUENTHER, CONG. RESEARCH SERV., RL31852, THE SECTION 179 AND BONUS DEPRECIATION EXPENSING ALLOWANCES: CURRENT LAW AND ISSUES FOR THE 114TH CONGRESS 3 (Aug. 6, 2015) <https://fas.org/sgp/crs/misc/RL31852.pdf>.

¹⁵⁷ *Id.* at 3-4.

¹⁵⁸ "H.R. 2510 - To Amend the Internal Revenue Code of 1986 to Modify and Make Permanent Bonus Depreciation" <https://www.congress.gov/bill/114th-congress/house-bill/2510> (removing the requirement that property be purchased before 2020 from the definition of "qualified property" in 168(k)(2))

basis, and \$267 billion when macroeconomic factors were included.¹⁵⁹ This means that dynamic effects of making bonus depreciation permanent would cause the government to recover about 4.6% of the revenue lost.

1. The Macroeconomic Effects

The result is unsurprising given the assumptions that CBO makes about the accumulation of capital and the fact that the bill aims to grow the economy by decreasing the cost of capital. JCT's analysis only forecasts the next ten years, while increased capital stock accrues slowly.¹⁶⁰ JCT relied on its Macroeconomic Equilibrium Model, which is essentially a Solow Growth Model, to produce this score. JCT forecasted that the bill would "have a very small effect on employment and consumption," which makes it difficult to have a large macroeconomic impact within the ten-year budget window. While the decreased cost of capital would normally have a large impact in the second and third decades following passage,¹⁶¹ that impact was offset by the increased federal borrowing caused by the bill in the first decade.

JCT was too uncertain to provide an estimate for the second and third decades, but based on their assumptions, it seems unlikely that it would have found positive macroeconomic effects in those decades. Because bonus depreciation would lose a lot of revenue in the first ten years, the federal government would have to borrow to cover the costs. The government would have to pay interest on that borrowing, which would add to the deficit and crowd out private investment. When investors buy government bonds, there is less money available for private investment. The effect of private investment being decreased by increased government borrowing is known as

¹⁵⁹ JOINT COMMITTEE ON TAX'N , A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, 'BONUS DEPRECIATION MODIFIED AND MADE PERMANENT,' 4 (October 27, 2015) <https://www.jct.gov/publications.html?func=startdown&id=4844>

¹⁶⁰ JANE G. GRAVELLE, CONG. RESEARCH SERV., R43381, DYNAMIC SCORING FOR TAX LEGISLATION: A REVIEW OF MODELS 3 (Jan. 24, 2015) http://graphics8.nytimes.com/packages/pdf/business/20140204_dynamic_scoring_report.pdf.

¹⁶¹ *Id.*

crowding out.¹⁶² Uncertainty over the size of the crowding out that would take place here is why JCT was too unsure to provide an estimate for the second and third decades.¹⁶³ As mentioned above, economists have criticized CBO's use of crowding out in its estimates given the lack of empirical evidence for it in recent years.

JCT's model included assumptions about the monetary policy of the Federal Reserve. The Federal Reserve controls American monetary policy by lending to banks at lower interest rates when the economy is too slow and lending at higher interest rates when the economy is overheated. JCT predicted that the Federal Reserve would be neutral to the policy early in the ten-year budget window and then act more aggressively toward the end of the window to counteract inflation. JCT's assumption that the Federal Reserve would tighten monetary policy in response to bonus depreciation offset some of the positive dynamic effects in JCT's estimate. JCT's explanation of the macroeconomic effects was mostly qualitative, which makes it difficult to determine how big an effect each of their assumptions had.

2. Critical Response

i. Heritage Foundation on the Inclusion of Assumptions about Monetary Policy

The Heritage Foundation criticized JCT's use of predictions of the Federal Reserve's monetary policy when evaluating the dynamic effects of the Bonus Depreciation bill.¹⁶⁴ In its estimate, JCT assumed the Fed "would be neutral toward the policy in the beginning of the budget period, consistent with the current Federal Reserve policy, and gradually begin to

¹⁶² Crowding out, along with the debate over whether it should be forecasted in dynamic scoring, is discussed in greater detail in section IV(B)(1)(iii).

¹⁶³ JOINT COMMITTEE ON TAX'N, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, 'BONUS DEPRECIATION MODIFIED AND MADE PERMANENT 3 (October 27, 2015).

¹⁶⁴ Curtis Dubay, "JCT Dynamic Score of Bonus Depreciation: Highly Flawed," HERITAGE FOUNDATION (Nov. 3, 2015) <http://www.heritage.org/taxes/report/jct-dynamic-score-bonus-depreciation-highly-flawed>

counteract the expansionary effects of growing deficits over the budget period.”¹⁶⁵ Heritage felt that it was inappropriate to make this assumption because “the Fed does not alter monetary policy because of changes to fiscal policy.”¹⁶⁶ This goes to the heart of an important debate in macroeconomic modeling: Some believe that monetary policy is too difficult to predict and too diffuse from individual fiscal policy decisions to include in a macroeconomic estimate, while others believe that including those estimates improves the overall accuracy. Many macroeconomic models require assumptions about monetary policy in order to function at all,¹⁶⁷ but there is still debate over whether these effects should be considered. In addition, the assumptions about monetary policy built into an OLG model, for example, are assuming the country’s overall monetary policy as opposed to the Fed’s response to a single piece of legislation. Assumptions about monetary policy are also necessary for forecasting short-run effects. The need for those assumptions is part of the argument against including short-run effects in dynamic scores for tax reform.¹⁶⁸ The debate over the inclusion of monetary policy assumptions is a microcosm of the dynamic scoring debate. Macroeconomic effects should be included because ignoring them introduces bias into the scoring process, and the same may be true of including monetary policy into estimates.

ii. Tax Foundation’s More Optimistic Dynamic Score

The Tax Foundation produced a budget score for bonus depreciation which found that the bill would cost \$336 billion over ten years under static scoring, and just \$74 billion over ten

¹⁶⁵ JOINT COMMITTEE ON TAX’N, JCX-134-15, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, ‘BONUS DEPRECIATION MODIFIED AND MADE PERMANENT 5 (Oct. 27, 2015).

¹⁶⁶ Curtis Dubay, “JCT Should Not Predict Federal Reserve Actions in Dynamic Scoring,” HERITAGE FOUNDATION (Dec. 22, 2015) <http://www.heritage.org/taxes/report/jct-should-not-predict-federal-reserve-actions-dynamic-scoring>

¹⁶⁷ See the Section on the Overlapping Generations Growth Model above.

¹⁶⁸ See Section on Short-term Effects above.

years under dynamic scoring.¹⁶⁹ In Tax Foundation’s forecast, the dynamic effects would have made up for 78% of the revenue lost. This dwarfs any dynamic effect JCT or CBO has ever forecast.

The large disparity between the two estimates comes from a mix of differences in model structure and assumptions about the implementation of the law. For example, Alan Cole from the Tax Foundation points out that, JCT found that “40 percent of investments will be eligible for [bonus depreciation]; the Tax Foundation puts that number closer to 70%.”¹⁷⁰ The difference in expected utilization of bonus depreciation explains why Tax Foundation predicted that bonus depreciation would be \$56 billion more expensive on a static basis than JCT did. Tax Foundation attributed this large disparity to differing views on the bill’s effect on capital stock.¹⁷¹ The JCT report found that, while bonus depreciation would increase capital stock in the long-term, this effect would be muted by the increased deficit spending that would need to take place in order to offset the revenue lost by the tax cut.¹⁷²

3. Takeaways

The bonus depreciation dynamic score indicates that JCT has not significantly changed its dynamic scoring methodology under Republican congressional leadership. Given JCT’s longstanding nonpartisan credibility and that the JCT Director was not replaced by the new

¹⁶⁹ Alan M. Cole, “Economic and Budgetary Effect of Permanent Bonus Expensing,” TAX FOUNDATION 3 (Sept. 2015) https://files.taxfoundation.org/legacy/docs/TaxFoundation_FF480.pdf

¹⁷⁰ Alan M. Cole, “Economic and Budgetary Effect of Permanent Bonus Expensing,” TAX FOUNDATION 4 (Sept. 2015) https://files.taxfoundation.org/legacy/docs/TaxFoundation_FF480.pdf

¹⁷¹ Gavin Ekins, “Assumption About Global Capital Markets Explains the Difference Between the JCT’s and the Tax Foundation’s Estimates of Bonus Expensing,” TAX FOUNDATION (Nov. 12 2015) <https://taxfoundation.org/assumption-about-global-capital-markets-explains-differences-between-jcts-and-tax-foundations>.

¹⁷² JOINT COMMITTEE ON TAX’N, JCX-134-15, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF H.R. 2510, ‘BONUS DEPRECIATION MODIFIED AND MADE PERMANENT,’ 2 (October 27, 2015) <https://www.jct.gov/publications.html?func=startdown&id=4844>

Congress, this result is not surprising.¹⁷³ If JCT was going to follow a more conservative tact, it likely would have adjusted its models to produce smaller crowding out effects. Instead, crowding out appears to remove much of the economic upside of bonus depreciation. Making this change would have had significant support in economic literature¹⁷⁴ and could easily have been justified as a measure focused on producing more accurate estimates. The decision not to do so indicates JCT's dedication to methodological continuity and willingness to provide disappointing dynamic scores to Congress.

B. The Tax Relief Extension Act of 2015 (Tax Extenders)

JCT's first dynamic score following the enactment of the 2016 budget resolution was for a bill extending bonus depreciation and dozens of other tax cuts that had expired in 2014. The legislation extended these tax breaks for two years, through 2017. JCT found that the legislation would lose almost \$97 billion over the budget window on a static basis, and that macroeconomic effects would regain \$10 billion of that lost revenue.¹⁷⁵ Dynamic effects were therefore expected to make up for about 11% of the revenue lost.

1. Macroeconomic Effects

JCT explained that the positive macroeconomic effects would result largely from increasing the capital stock in the United States. The effect on the labor market was expected to be minimal. The growth in the capital stock would only be temporary because the provisions in the legislation were not permanent.¹⁷⁶ JCT expected that the capital stock would return to its prior level by the end of the budget window. The second and third decade effects are therefore

¹⁷³ Eric Kroh, "Barthold to Remain Chief of Staff for Joint Tax Committee," LAW360 (Jan. 12, 2015) <https://www.law360.com/articles/610747/barthold-to-remain-chief-of-staff-for-joint-tax-committee>

¹⁷⁴ See Section IV(B)(1)(iii) on crowding out above.

¹⁷⁵ JOINT COMMITTEE ON TAX'N, JCX-107-15, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF THE "TAX RELIEF EXTENSION ACT OF 2015," 7 (Aug. 4, 2015).

¹⁷⁶ *Id.* at 3.

expected to be relatively minor. The only lingering economic effect would be a small crowding out effect from the bill's increase in the federal deficit.¹⁷⁷ Unlike the bonus depreciation score, the Tax Extenders score assumed that the Federal Reserve would be neutral to the policy throughout because the tax cuts only lasted for two years.¹⁷⁸ As with other scores, JCT appears to have relied heavily on its Macroeconomic Equilibrium Growth Model.¹⁷⁹

2. Critical Response

Jacob Bernstein, an economist for the Center on Budget and Policy Priorities, responded to the dynamic score by pointing out that JCT's estimates included a great deal of uncertainty that is not reflected in the final score. Bernstein felt that JCT's analysis fell short in part because it provided a point estimate for macroeconomic feedback instead of a range of possible values.¹⁸⁰ JCT has received criticism in the past for providing static budget estimates rounded to the nearest million dollars when in fact they could not possibly have provided an accurate forecast that precise.¹⁸¹ That uncertainty is even greater for dynamic scoring because, as discussed above, macroeconomic forecasting involves making a number of assumptions. The Tax Extenders macroeconomic score involved assumptions about labor supply elasticity, monetary policy, savings behavior, and a host of other factors.¹⁸² Given this uncertainty, Bernstein felt that macroeconomic effects should not be included in the bill's budget score.

¹⁷⁷ *Id.* at 3.

¹⁷⁸ *Id.* at 9.

¹⁷⁹ *Id.* at 9.

¹⁸⁰ Jacob Bernstein, "Dynamic Scoring in Action: Unwarranted Certainty," (Aug. 5, 2015) <http://jaredbernsteinblog.com/dynamic-scoring-in-action-unwarranted-certainty/>

¹⁸¹ See, e.g., Michael Knoll, "The Taxation of Private Equity Carried Interests: Estimating the Revenue Effects of Taxing Profit Interests as Ordinary Income," *William & Mary L. Rev.* 115, 160 (Nov. 7, 2008) ("[T]he JCT numbers are very precise – to the nearest \$1 million. They are far more precise than anyone can be confident about.").

¹⁸² JOINT COMMITTEE ON TAX'N, JCX-107-15, A REPORT TO THE CONGRESSIONAL BUDGET OFFICE OF THE MACROECONOMIC EFFECTS OF THE "TAX RELIEF EXTENSION ACT OF 2015," 10 (Aug. 4, 2015).

Tim Worstall from *Forbes* argued that Bernstein’s critique was hypocritical. Bernstein evidently supported the Economic Policy Institute’s research and advocacy supporting the effort to raise the minimum wage.¹⁸³ Worstall claimed that EPI’s work on raising the minimum wage centered on the macroeconomic benefits of that policy. This meant that Bernstein supported macroeconomic analysis when it suited his political beliefs and opposed it when it did not.

CRFB heralded the result as a rebuke of the economic utility of what they considered fiscally irresponsible legislation.¹⁸⁴ CRFB pointed out that lawmakers often argue that the tax cuts will largely pay for themselves, before explaining how the JCT dynamic score undermines that argument. CRFB concluded by stating, “[s]imply put, lawmakers are not going to be able to hand-wave away the cost of tax extenders legislation, nor should they.”¹⁸⁵

3. Takeaways

The major takeaway from JCT’s score of the Tax Extenders legislation is that macroeconomic effects for tax provisions are not nearly large enough to pay for unfunded tax cuts. Much of the rhetoric against dynamic scoring was based on a concern that dynamic scoring would be used to pass largely unfunded tax cuts. The Tax Extenders score and the bonus depreciation score have shown that the impact of dynamic scoring is much smaller than many expected, at least under JCT’s scoring methodology.

¹⁸³ Tim Worstall, “Jared Bernstein Speaks with Forked Tongue on Dynamic Scoring,” FORBES (Aug. 6, 2015) <https://www.forbes.com/sites/timworstall/2015/08/06/jared-bernstein-speaks-with-forked-tongue-on-dynamic-scoring/#638e7f754b84>

¹⁸⁴ “JCT Confirms: Dynamic Scoring Doesn’t Make Extenders Look Much Better,” COMMITTEE FOR A RESPONSIBLE FEDERAL BUDGET (Aug. 6, 2015) <http://www.crfb.org/blogs/jct-confirms-dynamic-scoring-doesnt-make-extend-look-much-better>.

¹⁸⁵ *Id.*

C. ACA Repeal (2015)

The CBO scored the potential repeal of the Affordable Care Act in 2015, including both traditional and dynamic estimates. The ACA Repeal budget score did not assume that any policy would replace it. The CBO found that incorporating macroeconomic effects would have cut the cost of repeal in half, reducing lost revenue to the government by 20%. This is a massive effect, roughly double the size of the dynamic effects estimated in the CBO's Bonus Depreciation score.

1. Macroeconomic Effects

Why was the ACA Repeal score so large given that dynamic effects are typically 3% to 8% for tax cuts? Because many of the ACA provisions that do not raise revenue nevertheless shrink the labor market.¹⁸⁶ CBO found that many of the non-tax provisions in the ACA decreased the take-home pay of workers, thereby acting like an increase in the marginal tax rate. According to the CBO, non-tax provisions of the ACA accounted for over three-fourths of the ACA's negative impact on the labor market.¹⁸⁷ Part of the reason for the large effects is that the phase out of the ACA subsidies would increase marginal tax rates while lowering average tax rates. CBO explained it as follows:

[T]he health insurance subsidies provided by the ACA . . . move marginal and average tax rates in opposite directions. Consequently, their substitution and income effects push labor supply in the same direction. Phasing out a benefit as recipients' income rises effectively increases their marginal tax rate, discouraging them from working via the substitution effect; and providing the benefit in the first place effectively increases their income, discouraging them from working via the income effect.¹⁸⁸

So while a simple change in tax rates would cause substitution effects and income effects to move in opposite directions, here both effects encourage people to work less.

¹⁸⁶ EDWARD HARRIS & SHANNON MOK, CONG. BUDGET OFF., HOW CBO ESTIMATES THE EFFECTS OF THE AFFORDABLE CARE ACT ON THE LABOR MARKET 1-2 (Dec. 2015) https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/51065-ACA_Labor_Market_Effects_WP.pdf .

¹⁸⁷ *Id.* at 2 (Also stating that the phase out of the exchange subsidies accounted for half of that effect)

¹⁸⁸ *Id.* at 4.

2. Critical Response

Academic responses to the ACA score are relatively few. Dan Mitchell from the Mercatus Center was mostly satisfied with the score, but felt that the estimate overstated the negative macroeconomic effects of increased borrowing. The ACA estimate found that increased borrowing would crowd out private investment, which would offset some of the macroeconomic benefits of the tax cuts. CBO has laid out its views on the effects of increased deficit spending before.¹⁸⁹

Several media outlets, including some with liberal leanings, approved of the ACA budget score. Matt Yglesias at Vox thought that the score's reasonableness brought credibility to the CBO's dynamic scoring process.¹⁹⁰ Perhaps the greatest strength of CBO's ACA repeal budget score was its transparency. It is often difficult to find exact details about how certain results were reached. A typical budget score, even if it includes dynamic effects, will discuss the qualitative factors that played a role in the analysis without going into great detail about the impact those factors had on the estimate. In sharp contrast to typical scores, CBO produced a working paper providing detailed analysis about how they estimated the labor market effects of ACA repeal.

3. Takeaways

Finding dynamic effects of \$200 billion over ten years will make the next effort to repeal the Affordable Care Act easier. However, it is impossible to say how favorable the CBO's budget score will be toward the actual bill to replace the Affordable Care Act. CBO's estimate is based on a number of assumptions about what the repeal bill would look like. It assumes no replacement and complete repeal of the relevant taxes and health insurance provisions. In reality,

¹⁸⁹ See, e.g., JONATHAN HUNTLEY, CONG'L BUDGET OFF., THE LONG-RUN EFFECTS OF FEDERAL BUDGET DEFICITS ON NATIONAL SAVING AND PRIVATE DOMESTIC INVESTMENT (Feb. 2014)

https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/workingpaper/45140-NSPDI_workingPaper_1.pdf.

¹⁹⁰ Matthew Yglesias, "Keith Hall is Off to a Great Start at the CBO," VOX (June 19, 2015)

<http://www.vox.com/2015/6/19/8815509/keith-hall-cbo-dynamic-scoring>

ACA repeal legislation would likely keep at least some of the ACA's provisions and provide coverage to some of those who would lose coverage from repeal. The first version of AHCA, for example, would not have needed a favorable dynamic score to make it budget neutral. The dynamic effects of ACA could nevertheless play a large role in reconciliation if Congress attempts to pass health care reform as part of a reconciliation bill that is not budget neutral in the budget window without dynamic effects.

The large dynamic effect in this budget score should concern proponents of policies that provide benefits to low-income Americans. A large portion of the ACA's budget score comes from the increase in marginal tax rates and average tax rates. Typical redistributive policies will have the same problem because they provide a benefit to low-income people, and those benefits phase out as a person's income increases. This encourages people to work less via the substitution effect (because their benefits phase out as income increases) and via the income effect (because the affected people have been made richer). The substitution and income effects will thus encourage affected people to work less, as was the case with the ACA subsidy phase-out and the Medicaid expansion. Democratic opposition to dynamic scoring has focused on the way it would skew fiscal policy toward tax cuts, but the ACA repeal score demonstrates that dynamic scoring is a much greater threat to redistributive spending programs and mandates on employers.

D. The American Health Care Act

The House GOP introduced a bill repealing and partially replacing the ACA on March 6, 2017.¹⁹¹ CBO provided a score for the bill on March 13, 2017.¹⁹² That estimate did not include

¹⁹¹ "Ways and Means Republicans Release Legislation to Repeal and Replace Obamacare," House Committee on Ways and Means (Mar. 6, 2017) <https://waysandmeans.house.gov/american-health-care-act/>.

macroeconomic effects and yet still resulted in an estimated \$337 billion reduction of the budget deficit.¹⁹³ CBO did not estimate dynamic effects because, “quantifying and incorporating...macroeconomic effects have not been practicable” due to the “very short time available to prepare this cost estimate.”¹⁹⁴ CBO’s unwillingness to provide a macroeconomic analysis on such a tight timeframe demonstrates that it may be following Elmendorf’s recommendation that CBO only provide analyses when it has the resources to do so. CBO’s failure to provide a macroeconomic analysis fits within the requirements set out in the 2016 Budget Resolution. While this legislation is “major legislation” and therefore requires a macroeconomic estimate, CBO can decline to provide one if it does not have enough time.

E. Tax Reform Act of 2014

JCT’s estimate of the macroeconomic effects of the Tax Reform Act of 2014, known by some as the Camp Proposal, highlighted some of the problems with macroeconomic estimates. The Camp Proposal would have overhauled the tax system by deleting many tax breaks, taxing foreign earnings differently, and making other fundamental changes. This led to a great deal of uncertainty about the macroeconomic effects of that legislation. JCT’s static scoring estimate of the budgetary effects forecasted a revenue loss of \$590 billion over ten years.¹⁹⁵ The macroeconomic effects were “projected to increase revenues relative to the conventional revenue estimate by \$50 to \$700 billion, depending on which modeling assumptions are used” over the same ten-year period.¹⁹⁶ According to JCT’s analysis, the legislation could cost \$550 billion over

¹⁹² CONG’L BUDGET OFF., AMERICAN HEALTH CARE ACT: COST ESTIMATE (March 13, 2017) https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/costestimate/americanhealthcareact_0.pdf.

¹⁹³ *Id.* at 1.

¹⁹⁴ *Id.* at 4.

¹⁹⁵ JOINT COMMITTEE ON TAX’N, JCX-22-13, MACROECONOMIC ANALYSIS OF THE ‘TAX REFORM ACT OF 2014’ 7 (Feb. 26, 2014) <https://www.jct.gov/publications.html?func=startdown&id=4564>

¹⁹⁶ *Id.* at 12.

ten years or create a surplus of \$110 billion over ten years. The uncertainty in dynamic scoring is one of the primary arguments against it, and scores like the one JCT provided here do little to allay that concern.