

***DYNAMIC SCORING: HOW WILL IT AFFECT FISCAL  
POLICYMAKING?***

Testimony before the Joint Economic Committee,  
United States Congress  
July 28, 2015

John W. Diamond  
Edward A. and Hermena Hancock Kelly Fellow in Public Finance  
Rice University's Baker Institute for Public Policy  
CEO, Tax Policy Advisers, LLC\*

---

\*The opinions expressed herein are solely my own and do not represent the views of the Baker Institute, Rice University, Tax Policy Advisers, LLC or any other organization.

## **I. Introduction**

Chairman Coats, Ranking Member Maloney, and Members of the Committee, thank you for inviting me to present my views on the importance of dynamic analysis and dynamic scoring. In my remarks, I plan to discuss why dynamic analysis is important, comment on some of the most recent dynamic analyses and discuss why they are important, and discuss how to implement dynamic analysis and scoring to improve the budget process.

## **II. Why Dynamic Analysis is Important**

A popular management adage is, “If you can’t measure it, you can’t manage it.” The federal government goes to great lengths to measure a number of important economic statistics to assess U.S. economic performance, including gross domestic product (GDP), inflation, unemployment, personal income, residential and non-residential construction, various measures of trade in goods and services, and others. While these statistics are generally viewed as reliable, slight changes in the way these statistics are estimated can lead to significant differences. For this reason there are often multiple statistics available to measure the same underlying economic concept, which highlights the inherent uncertainty in measuring economic performance.

Similarly, the Congressional Budget Office (CBO) and Joint Committee on Taxation (JCT) provide estimates of the budget effects of spending and tax policies in relation to baseline budget projections. For example, CBO (2015b) projects that under the extended baseline (based largely on current law), revenues will increase to 19.4 percent of GDP while spending will increase to 25.3 percent of GDP by 2040. This implies that in 2040 the deficit would equal 5.9 percent of GDP and the federal debt held by the public would be 103 percent of GDP. But CBO notes that there is a considerable amount of uncertainty in these projections. For example, there is uncertainty on what future policies will be adopted by Congress. Note that under CBO’s alternative fiscal scenario (based largely on current policy instead of current law), which some view as a more likely outcome, the national debt is projected to reach 175 percent of GDP by 2040.

There is also uncertainty based on projections of other economic variables. For example, CBO reports that if interest rates were 0.75 percent higher than in the baseline projections, federal debt held by the public would be 130 percent of GDP rather than 107 percent. If productivity growth were reduced by 0.5 percentage points relative to the baseline, then federal debt held by the public would be 125 percent of GDP rather than 107 percent. By comparison, if the rate of productivity grew by 0.5 percentage points more, the debt would fall to 91 percent of GDP, highlighting the importance of understanding the determinants of productivity growth and other economic variables, especially those that can be affected by public policy.

There is also uncertainty related to the economic effects of enacting new policies. For example, CBO estimates that including the macroeconomic effects of higher marginal tax rates, larger deficits, larger transfer payments, and increased federal investment would increase the projected deficit from 5.9 to 6.6 percent of GDP in 2040. Acknowledging these uncertainties and examining the extent of uncertainty by adopting dynamic analysis is likely to improve the budget process not ruin it.

As these projections show, it is important that we strive to implement fiscal policies that maximize economic growth. This is especially true given that the U.S. debt to GDP ratio is at a historically high level and projected to begin increasing again in the next few years. However, to achieve this goal we must be able to compare the effects of alternative policies on the economy (including inherent uncertainties). Dynamic analysis can provide this information about the effects of policy proposals on economic growth, and it is important that we use this information to better manage U.S. fiscal policy. In fact, routinely disregarding information on the macroeconomic effects of alternative proposals leads to a budget process that under values proposals that help grow the economy and over values proposals that shrink the economy. We can no longer afford a budget process that fails to maximize economic growth.

Dynamic analysis allows the budget process to account for the effect of policy proposals on the level of aggregate output (gross domestic product), which is a function of the size of the capital stock and total hours of work in the economy. In addition, dynamic analysis may be used to examine the effects of policies on wages, consumption, welfare (under certain types of modeling), distributional outcomes (both within and across generations), as well as other important variables.

While dynamic analysis will provide valuable information about the relative economic effects of alternative policies, it will not solve the fiscal crisis facing the United States. Policymakers will still face many tough decisions in the years ahead. In addition, it is important to note that preparing a dynamic analysis is no easy task and presenting and communicating the results to members, their staff, and the general public is also difficult.

### **III. Dynamic Analysis is Widely Applied**

Note that, although it is controversial, dynamic analysis is already used on a fairly wide scale. For example, the Joint Committee on Taxation (JCT) has produced dynamic analyses of several significant tax proposals (JCT, 2003a; JCT, 2005; JCT, 2006; JCT, 2014a; JCT, 2014b). In addition, the Department of the Treasury's Office of Tax Analysis (OTA) has published dynamic analyses of the reform proposals made by the President's Advisory Panel on Federal Tax Reform (Carroll, Diamond, Johnson, and Mackie, 2006) and the proposal to permanently extend the President's tax relief (OTA, 2006). The Congressional Budget Office also publishes macroeconomic analyses of various proposals, including the President's Budget (CBO, 2003a and 2003b). Recently, JCT (2014b) provided a dynamic analysis of the effects of permanently extending 50 percent bonus depreciation and found that it would increase GDP by 0.2 percent over the budget window and would increase the business capital stock by 0.6 to 1 percent over the budget window. And most recently, CBO (2015c) examined the budget and economic growth effects that would be related to repealing the Affordable Care Act reporting that "CBO and JCT estimate that, over the final five years of the current budget window — the period from 2021 to 2025 — repealing ACA would boost GDP by about 0.7 percent, on average, relative to current law projections." The use of dynamic analysis is growing in importance and if used properly could facilitate the adoption of policies that will increase economic growth and improve U.S. fiscal sustainability. The following sections discuss a couple of specific findings from existing studies.

## **A. Several Studies Comparing the Macroeconomic Effects of Various Taxes**

The Organisation for Economic Co-operation and Development (OECD, 2008) published a study that compares different types of taxes in terms of their effects on economic growth. The OECD study concludes that corporate taxes are the most harmful to growth, followed by personal income taxes (including payroll taxes); high marginal personal income tax rates are also shown to discourage entrepreneurial activity. By comparison, consumption taxes have smaller negative effects on growth, while property taxes are estimated to be the least harmful. These results are broadly consistent with a large body of research that argues that consumption-based taxes are generally more efficient than income-based taxes, and that increases in corporate income and dividend taxes create large distortions relative to other taxes and should be minimized. In fact, the downward pressure on corporate tax rates around the world is evidence that many countries view high corporate tax rates as an impediment to growth, especially with an increasingly integrated global economy and an increase in the mobility of the capital stock.

Diamond and Viard (2008) draw similar conclusions. They analyzed the macroeconomic effects of a permanent tax rate reduction on different types of income, including wage, interest, dividend, and corporate income, as well as the effects of a permanent increase in tax credits and deductions. They used the Diamond-Zodrow (DZ) model to simulate each of these tax rate reductions assuming that the reduction was debt-financed for 10 years and then paid for by either a reduction in discretionary transfer payments or an across-the-board tax increase. The magnitude of the tax reduction is determined so that the decrease in revenue over the ten-year period following enactment is \$500 billion with no behavioral responses. They found that the wage, dividend and corporate rate reductions led to an increase in GDP in the long run if discretionary transfer payments were reduced. The increase in GDP was largest for the reduction in dividend and corporate tax rates. Note that an increase in personal tax credits decreased GDP in this case. If the cuts were offset by an across-the-board tax increase, the effect on GDP was negative for all of the tax cuts except for the dividend tax cut, which had no effect on GDP. The largest decrease in GDP (0.8 percent) occurred for the increase in tax credits (i.e., spending through the tax system). The implication is clear — a broad-based, low-rate tax system will increase economic growth while a narrow-based, high-rate tax system will reduce economic growth.

OTA (2006) examined the dynamic effects of the President's proposal to permanently extend a variety of tax provisions enacted in 2001 and 2003. The report provides information on the macroeconomic effects of the various tax provisions as well as the aggregate macroeconomic effect of all the provisions. This information allows for a comparison of the macroeconomic effects of various policies and, if used appropriately, could prove useful in structuring efficient tax policy. For example, the OTA report analyzes the following three groups of provisions:

- Extension of lower capital gain and dividend tax rates;
- Extension of lower ordinary income bracket rates for the 25, 28, 33, and 35 percent brackets and an extension of the repeal of the phase-out of personal exemptions and itemized deductions; and,

- Extension of the increase in the child credit from \$500 to \$1,000 per child, the increased standard deduction and bracket width for joint filers, and the 10 percent rate bracket.

The OTA report showed that lowering capital gains and dividend taxes, coupled with a decrease in government consumption after 10 years, increased gross national product (GNP) by 0.4 percent in the long run as lower effective tax rates on capital income increased saving and investment. By comparison, if the revenue losses were offset by an across-the-board tax increase after 10 years the report predicts a 0.3 percent increase in real GDP in the long run. In fact, permanently extending the dividend and capital gains tax cuts increased real GNP in the long run for all of the options considered in the OTA analysis. However, as noted by OTA, changes in a variety of simplifying assumptions underlying the economic model used in this report could strengthen or weaken these results. This includes assumptions about the economic effects of dividend taxes and a variety of other economic distortions that are not included in the model.

For the base case parameter values, the report showed that permanently extending the cuts in the top four ordinary income tax brackets and the repeal of the phase-out of personal exemptions and itemized deductions increases real GDP by 0.7 percent in the long run if the tax cuts are financed by reductions in government consumption. However, if the tax cuts are financed by an across-the-board tax rate increase after 10 years the policy has a negligible impact on real GDP. By comparison, permanently extending the increase in the child credit, the increase in the standard deduction and bracket width for joint-filers, and the 10 percent rate bracket reduces real GNP by 0.4 percent if financed with a cut in government consumption after 10 years and by 1.2 percent if financed by an across-the-board tax rate increase after 10 years.

Purely from an efficiency perspective (noting that fairness, simplicity, and administrability are also important factors), a permanent reduction in dividend and capital gains tax rates is preferred to lowering the four highest ordinary income tax rates coupled with the repeal of the phase-out of personal exemptions and itemized deductions in most cases presented in the report. Similarly, a permanent reduction in dividend and capital gains tax rates or the changes to the top four brackets are preferred to an increase in the child credit, the marriage tax relief, and the 10 percent bracket, as the latter are inframarginal changes for most individuals.

JCT (2005) examined the macroeconomic effects of three proposals that each provide \$500 billion in tax reductions. The three proposals that are examined are a decrease in individual income tax rates, an increase in the personal exemption, and a decrease in the corporate income tax rate. They showed that an individual rate reduction would increase GDP by 0.3–0.4 percent in the long run if government spending was decreased to stabilize the debt to GDP ratio after 10 years. In the case of no fiscal offset, so that debt increases as a share of GDP, the individual rate reduction led to a decrease in GDP in the long run ranging from 0.2–0.5 percent. A corporate rate reduction led to an increase in GDP in the long run ranging from 0.5–0.9 percent if government spending was decreased to stabilize the debt to GDP ratio after 10 years, an increase in GDP ranging from 0.5–0.6 percent in the long run with a decrease in personal exemptions, and an increase in GDP in the long run ranging from 0.0–0.3 percent with no fiscal offset (the case in which debt increases as a share of GDP). Finally, they reported that an increase in

personal exemptions led to an decrease in GDP in the long run ranging from 0.4–0.7 percent with no fiscal offset, and that an increase in personal exemptions increased GDP in the long run by 0.1–0.2 percent if it is offset with a decrease in government spending (substituting spending through the tax code for direct spending). The results indicate that corporate tax reductions have the largest growth effects, followed by individual income tax reductions, and then an increase in the personal exemption (which reduces growth unless government spending is reduced). The order of the growth effects of the tax reductions is consistent with the findings reported in OECD (2008), Diamond and Viard (2008), and OTA (2006). This implies that to maximize U.S. economic growth policymakers should adopt a tax system characterized by low capital income tax rates, low individual income tax rates, and minimal tax expenditures. To achieve this outcome, the United States could follow the base-broadening, rate-reducing (BBRR) reform approach such as the Tax Reform Act of 1986 or a modification of the recently proposed Tax Reform Act of 2014. Alternatively, the United States could also adopt a more modern approach and move towards some form of a consumption-based tax system.

These results are important because they allow us to compare policy alternatives. For example, consider two hypothetical proposals. The first proposal raises \$200 billion in revenue by taxing capital gains and dividends and increases tax expenditures by \$200 billion by expanding child tax credits. The second proposal would raise \$200 billion by reducing child tax credits and reduce revenues by \$200 billion by lowering capital gains and dividend tax rates. The conventional estimates would view these two proposals as equivalent from a budget perspective (with some small differences showing up to account for certain timing effects). However, the above analyses clearly show that the first proposal would decrease economic growth and cause an increase in deficits, while the second would increase economic growth and lead to deficit reduction if no other policy actions were taken. It is important that we account for such differences in the policy making process. Some detractors of dynamic analysis argue that often times enactment of a certain set of policies will have a negligible macroeconomic effects, but this also is important to know (especially if it leads policymakers to modify the policies to create a positive economic impact).

## **B. Dynamic Analysis of the Tax Reform Act of 2014**

The Tax Reform Act of 2014 was a comprehensive proposal for reform of both the corporate and personal income tax systems. The corporate income tax (CIT) reform was structured as a traditional base-broadening, rate-reducing reform. The plan would have lowered the CIT rate to 25 percent, phased in over five years, and eliminated a variety of business tax preferences, including accelerated depreciation (so that tax depreciation would approximate economic depreciation), expensing of research and development costs and half of advertising costs, and the deduction for domestic production. The plan would have not allowed the last-in first-out (LIFO) inventory accounting rule and would have permanently created a 15 percent tax credit for research and development expenses.

The reform also changed the treatment of foreign source income, including moving to a 95 percent participation exemption (territorial) system. In this case, the effective tax rate is roughly 1.25 percent with a 25 percent CIT rate. It also allowed for current taxation of foreign source income from intangibles, defined as income in excess

of 10 percent on basis in depreciable assets (excluding other subpart F income and commodities income) due to foreign sales at a minimum tax rate of 15 percent (25 percent for U.S. sales), subject to foreign tax credits. The 15 percent rate also applied to intangibles income (income in excess of 10 percent on basis in depreciable assets other than from commodities) on sales to foreign markets from the United States. The reform would have limited subpart F income to low-taxed income and created a minimum tax of 12.5 percent for foreign sales and active financial services income, in addition to the minimum tax rates noted above. There was also a one-time tax on the stock of unrepatriated profits, at an 8.75 percent rate on cash and equivalents and at a 3.5 percent rate on illiquid assets.

The plan would have also reformed the tax treatment of individual income by broadening the tax base and lowering the rates on individual income. It would have included a 10 and 25 percent rate bracket, with a 10 percent surtax on high income households (above \$450,000 for married couples). The standard deduction, child credit, and the 10 percent bracket would have been phased out for high-income households. The plan would have repealed itemized deductions for state and local (non-business) taxes, medical expenses, personal exemptions, and the alternative minimum tax. In addition, it would have limited the mortgage interest deduction. Capital gains and dividends would have been taxed as normal individual income after a 40 percent exclusion.

Diamond and Zodrow (2014) examine the dynamic effects of a variant of TRA 2014 proposed by then House Ways and Means Committee Chair Dave Camp. They find that TRA 2014 would increase GDP by 1.2 percent after five years, by 2.2 percent after 10 years, and by 3.1 percent in the long run. The long-run increase in GDP is primarily driven by a 5.0 percent increase in the capital stock and a 0.3 percent increase in labor supply, driven by significant reductions in corporate income tax rates that in turn raise revenues in part by reversing income shifting abroad by U.S. multinational companies. Such an increase in GDP, which is simulated under a revenue neutral fiscal policy, would lower the debt to GDP ratio, as growing income makes it easier to service a given level of debt. JCT (2014a) and the Tax Foundation (Entin, Schuyler, and McBride; 2014) also examined the macroeconomic effects of TRA 2014.

The various analyses of TRA 2014 imply that the macroeconomic effects of a BBRR reform depend very much on both the details of the specific reform proposal and the context in which it is imposed. In particular, these results indicate that a BBRR reform is more likely to result in positive macroeconomic effects if (1) the initial amount of income shifting is large and is reduced significantly when the statutory CIT rate in the United States declines, (2) accelerated depreciation is retained instead of being used as a base broadening provision, and (3) the BBRR reform includes a move to a territorial system of the type analyzed in TRA 2014, that is, one that includes anti-base erosion provisions that are sufficiently effective that the tax sensitivities of international capital and income shifting are the same as prior to the enactment of the reform.

#### **IV. Implementing Dynamic Analysis to Improve the Budget Process**

As noted above, dynamic analysis has already been used on wide scale. However, there are a number of important issues regarding how to use dynamic analysis to improve the budget process. House Rule XIII.8 (sections a through d) requires that JCT and CBO

should “to the greatest extent practicable, incorporate the budgetary effects of changes in economic output, employment, capital, and other macroeconomic variables resulting from such legislation” if the legislation “has a gross budgetary effect of 0.25 percent of the current projected GDP” or is “designated as such by the chair of the Committee on the Budget” for spending proposals or the chair or vice chair of the Joint Committee on Taxation for revenue proposals.

One of the primary goals of dynamic analysis should be to compare the macroeconomic effects of various provisions. While measuring the economic effects of a base reform proposal for the purpose of determining the revenue feedback is important, much of the additional information that could be gleaned from dynamic analysis would not be realized if dynamic scoring was the only objective.

Analyzing every provision separately would be counterproductive, as this would be an overwhelming burden on staff resources. In addition, this would require more legislative foresight so that JCT has enough time to produce various dynamic analyses in the course of developing legislation. While examining every provision on its own would be impossible, there may be times when it makes sense to examine a single provision. For example, JCT provided a dynamic analysis of the effects of permanently extending 50 percent bonus depreciation and found that it would increase GDP by 0.2 percent over the budget window and would increase the business capital stock by 0.6 to 1 percent over the budget window. Note that a temporary extension of this provision would have different economic effects and such an analysis would be of interest. We must avoid only analyzing proposals with positive economic effects and not analyzing proposals with negative economic effects.

Dynamic analysis should examine and present results on the effects of groups of related provisions separately from the entire proposal for large policy reforms. For example, it would be interesting to break TRA 2014 into three dynamic analyses examining the effects of corporate reform, a move to territorial, and the effects of the individual income tax reforms (and it may be of interest to break these apart as well). Providing estimates of parts of larger reforms would allow for more outside feedback and analysis and would reduce the extent to which the results seem to emanate from a “black box.” In addition, it may be informative to examine the effects of groups of provisions on major economic aggregates including employment and wage income, capital, consumption, and welfare. Producing dynamic analysis on smaller groups or different types of proposals will add more information and make the analysis more reliable. JCT (2005) provides an example of this type of analysis.

Debt service costs in both the short and long run are generally included in dynamic analysis but are not included in conventional cost or revenue estimates. This is important because budget gimmicks within the budget window can obscure the long run effects of policies, especially policies that are debt-financed, temporary, or phased-in late in the budget window.

Dynamic analysis should also be applied to spending proposals. However, the demand-side effects of spending and tax proposals should not be considered, especially for permanent proposals. In cases in which the purpose of the policy is purely to impact short-run demand, the long-run effects of debt financing such expenditures should be carefully examined.



Macroeconomic aggregates are not the only information that should be provided to policymakers. Some measure of welfare should also be provided in addition to the macroeconomic aggregates. This is important because positive macroeconomic effects can be associated with negative welfare effects for U.S. residents (Diamond and Viard, 2008). Dynamic analysis of distributional effects (both within income groups and across generations) are also often of interests for certain proposals.

The extent of the uncertainty contained in a dynamic analysis must be acknowledged. For example, this would include discussing the sensitivity of the results to various assumptions about parameter values, the assumptions underlying the economic model, whether the policy was financed by changes in government spending, taxes, or government debt, and assumptions about the reactions of other entities such as the Federal Reserve, state governments, and foreign countries.

Dynamic analysis should be timely so that it can be used effectively in the formulation of policy. Public disclosure is imperative and as much information as possible should be released to the public. At a minimum, enough information should be released so that outside entities could replicate the work. This will ensure that the process is seen as fair and open and will serve as a check on those who provide the estimates.

## References

Carroll, Robert, John Diamond, Craig Johnson, and James Mackie III, 2006. *A Summary of the Dynamic Analysis of the Tax Reform Options Prepared for the President's Advisory Panel on Federal Tax Reform*, U.S. Department of the Treasury, Office of Tax Analysis, May 25, 2006, prepared for the American Enterprise Institute Conference on Tax Reform and Dynamic Analysis May 25, 2006

Congressional Budget Office, 2015a. "The Budget and Economic Outlook: 2015 to 2025." Congressional Budget Office, Washington, DC.

Congressional Budget Office, 2015b. "The 2015 Long-Term Budget Outlook." Congressional Budget Office, Washington, DC.

Congressional Budget Office, 2015c. "Budgetary and Economic Effects of Repealing the Affordable Care Act." Congressional Budget Office, Washington, DC.

Congressional Budget Office, 2003a. "An Analysis of the President's Budgetary Proposals for Fiscal Year 2004." Congressional Budget Office, Washington, DC.

Congressional Budget Office, 2003b. "How CBO Analyzed the Macroeconomic Effects of the President's Budget." Congressional Budget Office, Washington, DC.

Diamond, John W., and Alan D. Viard, 2008. "Welfare and Macroeconomic Effects of Deficit-Financed Tax Cuts: Lessons from CGE Models." In Viard, Alan D. (ed.), *Tax Policy Lessons from the 2000s*, 145–193. The AEI Press, Washington, DC.

Diamond, John W., and George R. Zodrow, 2014. "Dynamic Macroeconomic Estimates of the Effects of Chairman Camp's 2014 Tax Reform Discussion Draft," available at [http://businessroundtable.org/sites/default/files/reports/Diamond-Zodrow%20Analysis%20for%20Business%20Roundtable\\_Final%20for%20Release.pdf](http://businessroundtable.org/sites/default/files/reports/Diamond-Zodrow%20Analysis%20for%20Business%20Roundtable_Final%20for%20Release.pdf).

Entin, Stephen, Michael Schuyler, and William McBride, 2014. "An Economic Analysis of the Camp Tax Reform Discussion Draft," available at <http://taxfoundation.org/sites/default/files/docs/SR219.pdf>

Joint Committee on Taxation, 2003a. Macroeconomic Analysis of H.R. 2, the Jobs and Growth Reconciliation Tax Act of 2003, *Congressional Record*, May 08, 2003.

Joint Committee on Taxation, 2003b. *Overview of Work of the Staff of the Joint Committee on Taxation to Model the Macroeconomic Effects of Proposed Tax Legislation to Comply with House Rule XIII.3.(h)(2)* (JCX-105-03), December 22, 2003.

Joint Committee on Taxation, 2005. *Macroeconomic Analysis of Various Proposals to Provide \$500 Billion in Tax Relief*, (JCX-4-05), March 1, 2005.

Joint Committee on Taxation, 2006. *Macroeconomic Analysis of a Proposal to Broaden the Individual Income Tax Base and Lower Individual Income Tax Rates*, (JCX-53-06), December 14, 2006.

Joint Committee on Taxation, 2014a. *Macroeconomic Analysis of the Tax Reform Act of 2014*, (JCX-22-14), February 26, 2014.

Joint Committee on Taxation, 2014b. *Macroeconomic Analysis for Bonus Depreciation Modified and Made Permanent*, July 03, 2014.

Organisation for Economic Co-operation and Development, 2008. "Taxes and Economic Growth," Economics Department Working Paper No. 620. <http://www.oecd.org/tax/tax-policy/41000592.pdf>.

U.S. Department of the Treasury, Office of Tax Analysis, 2006. *A Dynamic Analysis of Permanent Extension of the President's Tax Relief*, July 25, 2006.