CBO's Approach to Dynamic Analysis

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For additional information, see Congressional Budget Office, "Dynamic Analysis," www.cbo.gov/topics/dynamic-analysis.

Overview

- New requirement for dynamic scoring

- CBO's approach to dynamic analysis

- Case study: Restoring Americans' Healthcare Freedom Reconciliation Act of 2015

The New Requirement for Dynamic Scoring

Requirements Under the 2016 Budget Resolution

- To the greatest extent practicable, CBO and JCT shall incorporate the budgetary effects of changes in macroeconomic variables resulting from legislation that
  - Has a gross budgetary effect of 0.25 percent of GDP (excluding macroeconomic feedback) in any year over the next 10 years (an amount equal to about $47 billion in 2016); or
  - Is designated by one of the Chairmen of the Budget Committees.

- Estimates shall also include a qualitative assessment of the budgetary effects (including macroeconomic effects) for the subsequent 20-year period.

Requirements Under the 2016 Budget Resolution (Continued)

- Appropriation acts are excluded.

- CBO and JCT will coordinate on legislation that significantly affects both spending and tax policies.

The New Requirement Extends Previous Analyses by CBO

CBO has routinely produced estimates of the macroeconomic effects of fiscal policies and of the feedback from those macroeconomic changes to the federal budget:

- Analysis of the President's budget

- Annual long-term budget and economic outlook

- Analyses of illustrative fiscal policy scenarios

CBO's Approach to Dynamic Analysis

CBO's Approach to Analyzing Economic Effects of Fiscal Policies

- Short term: Changes in fiscal policies affect the overall economy primarily by influencing the demand for goods and services by consumers, businesses, and governments, which leads to changes in output relative to potential (maximum sustainable) output.

- Long term: Changes in fiscal policies affect output primarily by altering national saving, foreign investment in the U.S., federal investment, and people's incentives to work and save, as well as businesses' incentives to invest, thereby changing potential output.

Short-Term Effects From Changes in Demand

- Direct contributions to aggregate demand stem from changes in purchases by federal agencies and those who receive federal payments and pay taxes.

- The change in output for each dollar of direct contribution to demand (the demand multiplier) varies with the response of monetary policy.

- In CBO's estimates of indirect effects:
    - When the monetary policy response is likely to be limited, the demand multiplier over four quarters ranges from 0.5 to 2.5, with a central estimate of 1.5.
    - When the monetary policy response is likely to be stronger, the demand multiplier over four quarters ranges from 0.4 to 1.9, with a central estimate of 1.2; over eight quarters, it ranges from 0.2 to 0.8, with a central estimate of 0.5.

Short-Term Effects From Changes in Labor Supply

- Effects on the supply of labor lead to changes in employment, depending on the amount of slack in the labor market.

Long-Term Effects

- CBO uses two models of potential output to estimate the effects of changes in fiscal policies on the overall economy over the long term.
  - Solow-type growth model
  - Life-cycle growth model

- Potential output depends on:
  - Amount and quality of labor and capital (which depend on work, saving, and investment)
  - Productivity of the labor and capital inputs (which depends in part on federal investment)
  - Amount of national saving (which depends in part on federal borrowing)

The Role of Expectations About Fiscal Policy: Solow-Type Growth Model

- People base their decisions about working and saving primarily on current economic conditions, including government policies.

- Decisions reflect people's anticipation of future policies in a general way but not their responses to specific future developments.

The Role of Expectations About Fiscal Policy: Life-Cycle Growth Model

- People make choices about working and saving in response to both current economic conditions and their explicit expectations of future economic conditions.

- The model requires specification of future fiscal policies that put federal debt on a sustainable path over the long run because forward-looking households would not hold government bonds if the households expected that debt as a percentage of GDP would rise without limit.

- CBO models two sets of assumptions for those future fiscal policies, both beginning in 15 years and phased in over 10 years. :
    - Reduced spending (half from government purchases and half from transfers)
    - Increased taxes (half from marginal rate changes and half in lump-sum amounts)

- Both closure rules are reported, and results generally are similar.

How Labor Supply Responds to Changes in Fiscal Policy in the Solow-Type Growth Model

- The effects of a policy change on the labor supply depend on income and substitution elasticities calibrated based on a review of empirical research.

- CBO's central estimate corresponds to an earnings-weighted total wage elasticity for all earners of 0.19 (composed of a substitution elasticity of 0.24 and an income elasticity of -0.05).

- For some proposals, income and substitution effects may not offset each other (for example, if the proposal—after accounting for taxes and transfers—would increase marginal compensation per hour but reduce overall compensation).

Key Aspects of the Life-Cycle Growth Model

- Labor supply and private saving are influenced by the current values and future anticipated values of the after-tax rate of return on saving, the after-tax wage, and households' disposable income, among other factors.

- The elasticity with respect to a one-time temporary change in wages (the so-called Frisch elasticity) is 0.40, according to CBO's central estimates, with a range from 0.27 to 0.53.
  - Frisch elasticity is calibrated to be consistent with CBO's estimate of the total wage elasticity.

- Because of the uncertainty that households face about their future income, households in the life-cycle growth model take the precaution of holding additional savings as a buffer against potential drops in income.

Case Study:
H.R. 3762, Restoring Americans' Healthcare Freedom Reconciliation Act of 2015

Details of the Analysis

- CBO and JCT determined that the bill is "major legislation."
  - The sum of the absolute values of the budgetary effects of the provisions and their interactions equals $95 billion in fiscal year 2025 or 0.35 percent of projected GDP.

- The agencies analyzed the effects that the legislation would have on the U.S. economy and estimated the resulting budgetary impact—or macroeconomic feedback.

- CBO and JCT estimate that the bill would decrease federal budget deficits by about $130 billion over the 2016–2025 period.
  - Excluding feedback, deficits would decrease by $79 billion.
  - Feedback reduces deficits by an additional $51 billion.

- Estimates of the effects of the legislation are subject to substantial uncertainty.

How CBO and JCT Determined That the Bill Is "Major Legislation"

	Billions of Dollars, 2025	Percentage of Gross Domestic Product
Changes in Direct Spending (Outlays Only)		
Repeal Individual and Employer Mandates	-35.1	
Repeal the Excise Tax on High-Premium Insurance Plans	-4.1	
Repeal the Independent Payment Advisory Board	3.1	
Sum of the Absolute Values of Other Provisions and Interactions	3.0	
Absolute Value of Changes in Direct Spending	**45.3**	**0.16**
Changes in Revenues		
Repeal the Excise Tax on High-Premium Insurance Plans	-25.1	
Repeal Individual and Employer Mandates	-14.1	
Repeal the Medical Device Tax	-3.1	
Sum of the Absolute Values of Other Provisions and Interactions	7.0	
Absolute Value of Changes in Revenues	**49.2**	**0.18**
Total, Absolute Values of the Budgetary Effects of Provisions and Their Interactions	**94.5**	**0.35**

Budgetary Effects of H.R. 3762

The largest budgetary effects of enacting the legislation would stem from:

- Repealing provisions of the Affordable Care Act that require most people to obtain health insurance coverage and large employers to offer their employees health insurance coverage that meets specified standards or pay penalties

- Repealing the federal excise taxes imposed on the sale of medical devices and on certain employer-provided health coverage with premiums above specified amounts

Economic Effects of H.R. 3762

■ From 2021 to 2025, the bill would boost GDP by about 0.2 percent, on average, relative to current-law projections.

■ The bill would increase the supply of labor by increasing incentives to work.

■ The bill would increase the size of the capital stock by increasing labor supply (which makes capital more productive) and by decreasing federal borrowing (which increases the money available for investment).

Short-Term Economic Effects of H.R. 3762

- The bill would have lesser effects on output in the next few years than would occur later in the coming decade.

- Aggregate demand would be slightly lower in the short run.

- There would be a growing boost over time to the number of hours worked (as more people responded to the increase in incentives to work).

Summary of Estimated Effects on Direct Spending and Revenues of H.R. 3762 (As Reported by the Committee on the Budget on October 16, 2015)

Billions of Dollars, by Fiscal Year

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2016-2020	2016-2025
Estimated Changes Without Macroeconomic Feedback												
Effects on Outlays	-9.1	-17.5	-22.4	-26.1	-28.8	-31.0	-33.4	-35.0	-37.2	-37.7	-103.8	-278.2
Effects on Revenues	-11.5	-9.4	-11.2	-15.0	-17.5	-19.7	-22.6	-26.5	-30.5	-35.2	-64.6	-199.3
Effect on the Deficit	2.4	-8.0	-11.2	-11.1	-11.4	-11.4	-10.8	-8.5	-6.7	-2.4	-39.2	-78.9
Estimated Budgetary Impact of Macroeconomic Feedback												
Effects on Outlays	*	-0.2	-0.3	-0.2	*	0.4	0.6	0.8	1.0	1.1	-0.7	3.1
Effects on Revenues	0.5	1.1	2.5	4.3	5.4	6.4	7.2	8.1	8.9	9.6	13.8	54.0
Effect on the Deficit	-0.6	-1.3	-2.8	-4.5	-5.3	-6.0	-6.6	-7.3	-8.0	-8.6	-14.5	-50.9
Total Estimated Changes, Including Macroeconomic Feedback												
Effects on Outlays	-9.1	-17.6	-22.6	-26.4	-28.8	-30.7	-32.8	-34.2	-36.2	-36.6	-104.5	-275.1
Effects on Revenues	-11.0	-8.3	-8.7	-10.7	-12.1	-13.3	-15.4	-18.4	-21.6	-25.6	-50.8	-145.3
Effect on the Deficit	1.9	-9.3	-14.0	-15.7	-16.7	-17.4	-17.4	-15.8	-14.7	-11.0	-53.6	-129.8

* = between zero and $50 million.

Long-Term Effects of H.R. 3762

- CBO and JCT estimate that enacting the bill would increase deficits in the decades after 2026, with or without macroeconomic feedback.

- Excluding macroeconomic feedback, the loss of revenues from the repeal of the excise tax on certain high-premium health insurance plans would more than offset the savings from other provisions of the bill, causing an increase in budget deficits soon after 2025.

- Macroeconomic feedback is estimated to ultimately increase deficits despite the boost to incentives to work; in particular, the increase in deficits that would occur after 2025 (excluding macroeconomic feedback) would put upward pressure on interest rates and interest payments.