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Requirements Under 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% of GDP in any year over the next ten years (an amount equal to about $45 billion in 2015) 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
- Does not apply to appropriation acts

What Behavioral Responses Are Addressed in Conventional Cost Estimates?

- If proposed policies would affect people's behavior in ways that would generate budgetary savings or costs, the effects have been incorporated in CBO's cost estimates.
  - The change in production of various crops that would result from adopting new farm policies
  - The likelihood that people would take up certain government benefits when policies pertaining to those benefits are changed
  - The quantity of health care services that would be provided if Medicare's payment rates to providers were changed
- By longstanding convention, CBO's cost estimates generally have not reflected changes in behavior that would affect total output in the economy, such as any changes in labor supply or private investment resulting from changes in fiscal policy.

How the New Requirement Extends Previous Analysis 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 outlook
  - Analyses of illustrative fiscal policy scenarios
- Generally not for specific legislation, with one particular exception: S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act.
  - Because the bill would have significantly increased the size of the U.S. labor force, CBO and JCT incorporated in this cost estimate their projections of the direct effects of the act on the U.S. population, employment, and taxable compensation
  - CBO separately published analysis of additional economic effects and their feedback to the budget

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, federal investment, and people's incentives to work and save, as well as businesses' incentive to invest, thereby changing potential output.

Short-Term Effects from Changes in Demand

- Direct contributions to aggregate demand 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, 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, 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 that lead to changes in employment, depending on amount of slack in labor market

Long-Term Effects

- 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 (depend on work, saving, and investment)
  - Productivity of the labor and capital inputs (depends in part on federal investment)
  - Amount of national saving (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.
- 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.

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

- The overall effects of a policy change on the labor supply can be expressed as an elasticity, which is the percentage change in the labor supply resulting from a 1 percent change in after-tax income.
- CBO's estimates correspond to a total wage elasticity for all earners of 0.19 (composed of a substitution elasticity of 0.24 and an income elasticity of -0.05).
  - Substitution Effect: Increased after-tax compensation for an additional hour of work makes work more valuable relative to other uses of a person's time.
  - Income Effect: Increased after-tax income from a given amount of work allows people to maintain the same standard of living while working fewer hours.

Other Key Aspects of Solow-Type Growth Model

- When the deficit goes up by one dollar, private saving is estimated to rise by 43 cents (national saving falls by 57 cents), and net capital inflows rise by 24 cents, ultimately leaving a decline of 33 cents in investment.
- Additional federal investment is estimated to yield half of the typical return on investment completed by the private sector.

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

Presentation of Macroeconomic Analysis in Cost Estimates

- Presentation will probably evolve over time as CBO learns what is most useful
- Estimates will show all of the information that traditionally would be included if macroeconomic effects were not incorporated; will identify the macroeconomic effects separately
- Estimates will provide information related to the uncertainty of the macroeconomic effects

Summary of Estimated Budgetary Effects of H.R. X.

By Fiscal Year, in Billions of Dollars

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-2020	2015-2025
Changes in Direct Spending, Without Macroeconomic Effects													
Estimated Outlays	X	X	X	X	X	X	X	X	X	X	X	X	X
Changes in Revenues, Without Macroeconomic Effects													
Estimated Revenues	X	X	X	X	X	X	X	X	X	X	X	X	X
Net Increase or Decrease (-) in the Deficit, Without Macroeconomic Effects													
Estimated Impact on Deficit	X	X	X	X	X	X	X	X	X	X	X	X	X
Budgetary Impact of Macroeconomic Effects													
Estimated Impact on Deficit	X	X	X	X	X	X	X	X	X	X	X	X	X
Net Increase or Decrease (-) in the Deficit, With Macroeconomic Effects													
Estimated Impact on Deficit	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes

- *Answers to Questions for the Record Following a Hearing on the Budget and Economic Outlook for 2015 to 2025 Conducted by the Senate Committee on the Budget* (March 2015), www.cbo.gov/publication/49975.
- *Macroeconomic Analysis of Legislative Proposals* (May 2013), www.cbo.gov/publication/44165.
- *How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy* (November 2014), www.cbo.gov/publication/49494.
- *Cost Estimate for S. 744, Border Security, Economic Opportunity, and Immigration Modernization Act* (June 2013), www.cbo.gov/publication/44397.
- *The Economic Impact of S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act* (July 2013). www.cbo.gov/publication/44346.