



July 30, 2025

Honorable Brendan F. Boyle
Ranking Member
Committee on the Budget
U.S. House of Representatives
Washington, DC 20515

Honorable Jake Auchincloss
U.S. House of Representatives
Washington, DC 20515

Re: Preliminary Analysis of How Federal Investment in Nondefense Research and Development Affects the Economy and the Federal Budget

Dear Ranking Member Boyle and Congressman Auchincloss:

This letter responds to your request for information about the economic and budgetary effects of federal investment in nondefense research and development (R&D). For this preliminary assessment of the effects of providing additional funding for such investment—which the Congressional Budget Office expects to update in the coming months—the agency examined two illustrative scenarios in which federal funding for nondefense R&D is increased by \$30 billion per year for the next 10 years.

Under Scenario 1, the \$300 billion increase in federal funding for nondefense R&D over the next 10 years is financed by a reduction in noninvestment spending of the same amount. That approach, which is deficit-neutral before macroeconomic changes are accounted for, is estimated to have the following effects:

- In 2035, real gross domestic product (GDP)—that is, the nation’s economic output adjusted to remove the effects of inflation—would be 0.1 percent higher than CBO projects it would be under current law. In 2055, real GDP would be 0.8 percent higher than it would be under current law, which corresponds to an increase of 0.03 percentage points in the average annual growth rate of real GDP over the 2026–2055 period.
- The cumulative deficit for the next 10 years, 2026 to 2035, would be \$31 billion (or 0.1 percent) smaller than it is projected to be under

current law. The cumulative deficit for the next 30 years, 2026 to 2055, would be 2.1 percent smaller than projected under current law.

Under Scenario 2, that same increase in federal funding for nondefense R&D is financed by additional borrowing by the federal government. The effects on the economy would be similar to those under Scenario 1, but the effects on the budget would differ:

- In 2035, real GDP would be 0.1 percent higher than CBO projects it would be under current law. In 2055, real GDP would be 0.8 percent higher than projected under current law; the average annual growth rate of real GDP over the 30-year period would increase by 0.03 percentage points.
- The cumulative deficit for the next 10 years would be a total of \$303 billion (or 1.4 percent) *larger* than projected under current law. However, the cumulative deficit for the next 30 years would be 1.1 percent *smaller* than projected under current law.

Although those two scenarios illustrate the effects of a \$300 billion *increase* in funding, CBO expects that the results of a *decrease* in funding of a similar amount would be roughly symmetric—that is, the economic and budgetary effects would be of a similar magnitude but opposite sign.

The analysis presented here follows the framework the agency used in its August 2021 report about the effects of federal investment in physical infrastructure on the budget and the economy over 10-year and 30-year periods.¹ CBO projected budgetary and economic outcomes under the two scenarios and compared them with its January 2025 baseline projections and with its March 2025 extended baseline projections, both of which reflect the assumption that laws governing taxes and spending generally remain unchanged.²

¹ Congressional Budget Office, *Effects of Physical Infrastructure Spending on the Economy and the Budget Under Two Illustrative Scenarios* (August 2021), www.cbo.gov/publication/57327.

² Congressional Budget Office, *The Budget and Economic Outlook: 2025 to 2035* (January 2025), www.cbo.gov/publication/60870, and *The Long-Term Budget Outlook: 2025 to 2055* (March 2025), www.cbo.gov/publication/61187.

Federal Spending on R&D Under Current Law

In 2024, the federal government spent \$88 billion on nondefense research and development.³ Those funds supported R&D conducted by researchers in federal labs and at universities, as well as R&D conducted by businesses, nonprofit organizations, and state and local governments. The largest share of that spending, 56 percent, went to support biomedical research, mostly through the National Institutes of Health.⁴ Most of the remaining funds went to the National Aeronautics and Space Administration, the Department of Energy’s Office of Science, and the National Science Foundation to support work in a variety of scientific and engineering disciplines.

Federal funding for nondefense R&D contributes to innovation, which, on average, increases productivity and economic growth over time, in CBO’s assessment. That finding reflects the effects of a range of projects—some that increase productivity by more than average and some that ultimately have no effect on productivity. In addition, some projects reflected in that finding are not intended to increase productivity or economic output but rather to achieve other policy objectives—such as improving health outcomes and longevity.

Federal R&D funding supports the training of people, the creation of products, the production of reusable ideas, and knowledge spillovers that generate further ideas. Some of the effects of those activities occur quickly, whereas others take years to manifest.

Estimating How an Increase in Federal Funding for R&D Would Affect the Economy

The economic effects of any increase in federal funding for R&D would depend on the answers to several questions:

- How quickly would the additional federal funds be spent?
- How quickly would that spending boost private-sector productivity?

³ In addition to that spending on nondefense R&D, the federal government spent \$99 billion in 2024 for R&D related to defense and national security objectives. CBO has not assessed the budgetary and economic effects of changes in defense R&D.

⁴ Office of Management and Budget, *Budget of the U.S. Government, Fiscal Year 2025: Historical Tables*, Table 9.8 (accessed July 9, 2025), <https://tinyurl.com/yc3wmcsx>.

- To what extent would private companies and other organizations change their spending on R&D as a result of an increase in federal R&D?
- To what extent would changes in federal and private R&D spending affect productivity?
- How would the federal government finance the additional spending?

Time Between Funding and Outlays. One factor affecting the timing of the future effects of federal funding for R&D is the amount of time between funding and outlays. CBO estimates how much of an annual appropriation (and any remaining amounts from previous years' appropriations) will be spent in a given year and each subsequent year on the basis of historical spending patterns. CBO expects that about three-quarters of that funding would be spent in the first two years but that it would take up to seven years, on average, for agencies to spend the full amount of additional funding provided each year.

Time Between Outlays and Changes in Productivity. A second factor affecting the timing of the effects of federal funding for R&D is the amount of time between when R&D funds are spent and when changes in productivity are realized. On the basis of the research discussed below, CBO expects that the effects of the additional R&D on productivity would be long-lasting, extending nearly three decades after outlays are made. CBO estimates that the size of the productivity effects would increase over the first 15 years after an outlay was made, reflecting evidence about the time it takes before the maximum effects of newly trained researchers, novel ideas, and innovative products are felt. In CBO's assessment, those effects depreciate over time, so although they permanently increase the level of output, they eventually cease to contribute to output growth.

Changes in Spending on R&D by Other Organizations. The effects of federal funding for R&D also depend on the extent to which that funding changes the amount of funding for research provided by other organizations, such as businesses. In 2022, the most recent year for which data are available, the federal government funded about 18 percent of all R&D in the United States, and businesses funded 75 percent. (State and local governments, higher education institutions, and nonprofit organizations funded the rest.) That funding by businesses supported their

internal R&D work as well as external R&D conducted by researchers at universities and other noncommercial institutions.⁵

In CBO's assessment, research funded by the government typically complements other organizations' R&D activities, so an increase in federal funding, on average, encourages other entities to provide additional funding as well. CBO estimates that for each additional dollar of federal funding for R&D, the private sector's spending on R&D would increase by 25 cents. The economywide effects of that private investment in R&D, which takes place over several years, are reflected in CBO's estimates of the effects that additional federal funding for R&D would have on productivity and the economy.

Effects of Outlays on Productivity. In CBO's assessment, federal R&D spending affects productivity through three channels: labor, the R&D capital stock, and other investment. The largest share of federal funding for R&D—on average, 62 percent—is spent on labor.⁶ That funding supports the education, training, and employment of researchers whose work contributes to innovation and ultimately boosts productivity. CBO estimates that individuals employed in STEM (science, technology,

⁵ National Center for Science and Engineering Statistics, *National Patterns of R&D Resources: 2022–23 Data Update*, NSF 25-326 (February 27, 2025), Table 6, <https://tinyurl.com/5n8xvxa3>.

⁶ The shares in this analysis are based on the amounts that recipients of federal funding for R&D (the federal government itself, universities, businesses, nonprofit organizations, and state and local governments) spent on labor and other costs in 2022 (the most recent year for which data are available), weighted by each recipient's average share of federal funding for R&D from 1994 to 2023. National Center for Science and Engineering Statistics, *Annual Business Survey: 2023 (Data Year 2022)*, NSF 25-303 (October 29, 2024), <https://tinyurl.com/ycxw4kzj>, *Business Enterprise Research and Development: 2022*, NSF 24-335 (September 30, 2024), <https://tinyurl.com/2p9r74x3>, *Federal Facilities Research and Development: Fiscal Year 2022*, NSF 25-306 (November 7, 2024), <https://tinyurl.com/3en4tsey>, *FFRDC Research and Development Expenditures: Fiscal Year 2023*, NSF 24-328 (July 15, 2024), <https://tinyurl.com/y6kdzt8c>, *Higher Education Research and Development: Fiscal Year 2023*, NSF 25-314 (November 25, 2024), <https://tinyurl.com/mry943au>, *National Patterns of R&D Resources: 2022–23 Data Update*, NSF 25-326 (February 27, 2025), <https://tinyurl.com/5n8xvxa3>, and *Nonprofit Research Activities: FY 2022*, NSF 24-338 (October 8, 2024), <https://tinyurl.com/f9zschmy>.

engineering, and mathematics) fields contribute to innovation-related activity, and those innovations, in turn, affect economic growth.⁷

In CBO's assessment, the share of funding spent on R&D capital—on average, 33 percent—increases the stock of R&D capital, which affects total factor productivity (TFP) over time.⁸ (Total factor productivity is the average real output per unit of combined labor and capital services.) In its analysis, CBO relied on literature that analyzed both the direct effect of federal R&D spending on TFP and the indirect effects of changes in federal spending for R&D on outcomes such as patenting.⁹ The research literature provides evidence that increases in federally funded R&D boost productivity growth for at least 15 years. CBO applied an adjusted depreciation rate to the stock of R&D capital that accounts for economywide, rather than private, depreciation of the ideas included in the R&D capital stock.¹⁰

⁷ Congressional Budget Office, *Effects of the Immigration Surge on the Federal Budget and the Economy* (July 2024), www.cbo.gov/publication/60165. CBO based its assessment on several studies, including the following: Shai Bernstein and others, *The Contribution of High-Skilled Immigrants to Innovation in the United States*, Working Paper 30797 (National Bureau of Economic Research, December 2022), www.nber.org/papers/w30797; Marta Prato, *The Global Race for Talent: Brain Drain, Knowledge Transfer, and Growth* (SSRN, November 2022), <https://doi.org/10.2139/ssrn.4287268>; Keith W. Crane and others, *Economic Benefits and Losses From Foreign STEM Talent in the United States*, IDA Document D-31855 (Institute for Defense Analyses, Science & Technology Policy Institute, October 2021), <https://tinyurl.com/bdd5heaj>; and Leonid Kogan and others, "Technological Innovation, Resource Allocation, and Growth," *Quarterly Journal of Economics*, vol. 132, no. 2 (May 2017), pp. 665–712, <https://doi.org/10.1093/qje/qjw040>.

⁸ The capital stock consists of both tangible (machinery and structures) and intangible (knowledge and intellectual property) assets. See Bureau of Economic Analysis, "Intellectual Property" (June 26, 2025), <https://tinyurl.com/3up2zpbm>.

⁹ See, for example, Juan Antolin-Diaz and Paolo Surico, "The Long-Run Effects of Government Spending," *American Economic Review*, vol. 115, no. 7 (July 2025), pp. 2376–2413, <https://doi.org/10.1257/aer.20231278>; Andrew J. Fieldhouse and Karel Mertens, *The Returns to Government R&D: Evidence From U.S. Appropriations Shocks*, Working Paper 2305 (Federal Reserve Bank of Dallas, May 2023, revised November 2024), <https://doi.org/10.24149/wp2305r2>; Kyle R. Myers and Lauren Lanahan, "Estimating Spillovers From Publicly Funded R&D: Evidence From the U.S. Department of Energy," *American Economic Review*, vol. 112, no. 7 (July 2022), pp. 2393–2423, <https://doi.org/10.1257/aer.20210678>; and Pierre Azoulay and others, "Public R&D Investments and Private-Sector Patenting: Evidence From NIH Funding Rules," *Review of Economic Studies*, vol. 86, no. 1 (January 2019), pp. 117–152, <https://doi.org/10.1093/restud/rdy034>.

¹⁰ CBO adjusted the depreciation rate on the basis of analyses of patent citations as an indicator of the timing of those patents' spillover effects on other parts of the economy. See, for example, L. Kamran Bilir, "Patent Laws, Product Life-Cycle Lengths, and Multinational Activity," *American Economic Review*, vol. 104, no. 7 (July 2014), pp. 1979–2013, <https://doi.org/10.1257/aer.104.7.1979>.

The remaining share of federal funding for R&D—on average, 5 percent—is spent on other types of investment apart from R&D. CBO models the economic and budgetary effects of that type of investment in the same way that it models those of privately funded non-R&D investment.¹¹ When changes in R&D investment occur, CBO also models economywide spillover effects of that investment on TFP.¹²

Means of Financing Federal Funding for R&D. The economic and budgetary effects of additional federal funding for R&D depend on how that funding is financed.

Additional federal funding for R&D financed by reductions in noninvestment spending would not affect the demand for goods and services in the short run because total government purchases would remain unchanged. Over time, the increase in R&D spending would boost productivity and output.

If the additional funding for R&D was financed by borrowing, it would boost GDP in the short run (unlike the deficit-neutral approach) by increasing the overall demand for goods and services. The initial increase in borrowing would drive up interest rates and reduce the amount of funds available for private investment, which would partially offset the boost to productivity and output coming from increased R&D spending. In the long run, the total change in the deficit—including the effects brought on by changes in the economy—would determine the amount of resources available for private investment.

The effect of changes in deficits on private investment would depend on how those changes affected national saving and interest rates. The sum of private saving (saving by people and businesses) and government saving (budget surpluses), national saving represents the total amount of resources available for investment.¹³ The larger the decreases in national saving that resulted from the increases in deficits, the greater the increases in interest rates and the larger the reduction in private investment would be. If additional R&D spending was financed by a reduction in noninvestment

¹¹ Mark Lasky, *CBO's Model for Forecasting Business Investment*, Working Paper 2018-09 (Congressional Budget Office, December 2018), www.cbo.gov/publication/54871.

¹² For an example of such analysis in which private R&D expenditures change, see Congressional Budget Office, dynamic estimate for H.R. 1, the One Big Beautiful Bill Act (June 17, 2025; revised June 18, 2025), www.cbo.gov/publication/61486.

¹³ When the federal government runs a deficit, national saving is calculated by subtracting that amount from private saving.

purchases, the resulting changes in spending would offset each other and therefore have no effect on national saving or private investment. If additional R&D spending was financed by government borrowing, the increase in deficits—before macroeconomic changes are accounted for—would reduce national saving by the amount that was borrowed. In CBO’s assessment, that change in borrowing would reduce private investment by 40 cents per dollar borrowed.

An increase in the deficit brought on by changes in the economy—such as higher interest rates—would, in CBO’s assessment, reduce national saving by a smaller amount than would an equal-sized deficit increase attributable to additional borrowing for R&D spending. That is because private saving would increase in response to the macroeconomic changes, partially offsetting the increase in public borrowing. Higher interest rates, for example, would increase private saving, whereas the direct increase in the deficit from financing R&D spending would not. In this analysis, each dollar increase in the deficit caused by the economic effects of increased R&D spending is projected to reduce private investment by 25 cents, on average.

Economic and Budgetary Effects of Two Scenarios for Financing an Increase in Federal Funding for R&D

The budgetary and economic effects of an increase in federal funding for nondefense R&D would depend on how it was financed—whether by reducing noninvestment spending, as in Scenario 1, or by increasing federal borrowing, as in Scenario 2.

Scenario 1: R&D Funding Increase Financed by Reducing Noninvestment Spending. To pay for an additional \$30 billion in funding for R&D each year over the next 10 years, under this scenario, policymakers reduce noninvestment government spending. (For illustrative purposes, incentives to work and save are not directly affected by the reduction in noninvestment outlays under this scenario.) Deficits and debt would remain unchanged before the effects of macroeconomic changes are accounted for, so aggregate demand and the amount of funds available for private investment would be unaltered (see [Table 1](#)).

Under this scenario, real GDP in the first several years following the increase in R&D funding would be higher than it would have been without the additional investment in R&D. As outlays for R&D, and then productivity, increased, output would rise; real GDP would be 0.1 percent higher in 2035—and 0.8 percent higher in 2055—than it is in CBO’s baseline projections (see [Table 2](#)).

The increase in productivity from the additional R&D spending would boost the return on investment in private capital. When the return on capital grows, it puts upward pressure on interest rates, including the rates that the federal government pays on debt held by the public. That effect is more than offset by a reduction in the debt-to-GDP ratio—a reduction that stems from the increase in the size of the economy and from the reduction in deficits attributable to changes in the economy. Thus, beginning in 2029, the interest rate on 10-year Treasury notes would be lower than it is in CBO’s baseline projections.¹⁴

Higher productivity and output would increase revenues collected from 2026 to 2035 by a total of \$31 billion, CBO projects. The increase in productivity would push up prices, which would in turn increase noninterest outlays; however, the increase in noninterest outlays would be offset by a reduction in interest payments on federal debt. On net, total outlays over that period would be approximately unchanged.

Under this scenario, CBO estimates, the cumulative deficit for the 2026–2035 period would be \$31 billion smaller than it is in the agency’s baseline projections. That reduction in deficits would increase the amount of resources available for private investment and, in turn, increase output.

The boost to productivity and output would persist beyond 2035 under this scenario. If financed by a reduction in noninvestment government purchases, the \$300 billion increase in federal funding for R&D would reduce the cumulative deficit for the 2026–2055 period by 2.1 percent.¹⁵ Most of the deficit reductions would occur later in that period.

To account for the timing of the budgetary effects, CBO estimated the present value of the future changes in the deficit over 30 years. (A present value is a single number that expresses a flow of current and future income or payments in terms of an equivalent lump sum received or paid today.) CBO used two sets of discount rates to estimate the present value in 2025 of a \$300 billion increase in R&D funding financed by a reduction in noninvestment government purchases: Treasury rates and rates adjusted for market risk. In CBO’s estimation, that present value is a roughly

¹⁴ Andre R. Neveu and Jeffrey Schafer, *Revisiting the Relationship Between Debt and Long-Term Interest Rates*, Working Paper 2024-05 (Congressional Budget Office, December 2024), www.cbo.gov/publication/60314.

¹⁵ That reduction in deficits is measured relative to CBO’s extended baseline projections. See Congressional Budget Office, *The Long-Term Budget Outlook: 2025 to 2055* (March 2025), www.cbo.gov/publication/61187.

\$800 billion reduction in deficits when discounted using Treasury rates and about a \$500 billion reduction in deficits when discount rates adjusted for market risk are used.¹⁶

CBO estimates that, under Scenario 1, every additional dollar of federal investment in R&D would increase the present value of GDP over the next 30 years by an average of \$12.50 when discounted using Treasury rates and by an average of \$7.60 when discount rates adjusted for market risk are used.¹⁷

The effect on the present value of GDP over the next 30 years (discounted using Treasury rates) that a dollar increase in R&D spending financed by a reduction in noninvestment spending would have is about eight times larger than the effect that CBO estimated increased infrastructure spending would have in its August 2021 report. The estimated effect on GDP of an increase in R&D spending is larger than that earlier estimate for infrastructure spending for three reasons. First, a dollar of R&D spending affects a broader array of economic activity over a longer period than does a dollar of infrastructure spending—boosting productivity, and therefore output, by larger amounts. Second, the two analyses are based on different economic and budget baselines. Third, since 2021, CBO has updated its modeling of how changes in government borrowing, interest rates, and private investment affect each other.

Scenario 2: R&D Funding Increase Financed by Borrowing. Under this scenario, policymakers increase government borrowing to pay for an additional \$30 billion in funding for R&D each year for the next decade. The direct budgetary effect of that additional R&D spending would be a \$303 billion increase in the cumulative deficit for the 2026–2035 period, CBO estimates. The \$300 billion increase in R&D funding would directly increase noninterest outlays by \$266 billion and add \$48 billion to net

¹⁶ CBO used a discount rate of 7.0 percent for the macroeconomic changes' effects on deficits; that rate is based on the rate of return on capital in the national income and product accounts (NIPA) data. For the direct effects on the deficit, which are not subject to market risk, CBO used maturity-matched Treasury borrowing rates as the discount rates. The estimates are rounded to the nearest \$50 billion. For more information about CBO's use of discount rates and the reasons for using Treasury rates and rates adjusted for market risk, see Congressional Budget Office, *How CBO Uses Discount Rates to Estimate the Present Value of Future Costs or Savings* (October 2024), www.cbo.gov/publication/60284.

¹⁷ For the effects on GDP, CBO used a discount rate of 7.0 percent, which is based on the rate of return on capital in the NIPA data. For the effects on outlays, which are not subject to market risk, CBO used maturity-matched Treasury borrowing rates as the discount rates.

interest costs over the next decade if interest rates were the same as they are in CBO's baseline projections.

Financing the additional funding for R&D with borrowing would boost real GDP in both the short run and the long run. In the short run, the additional spending would increase aggregate demand. In the long run, the additional spending on R&D would increase productivity and private investment. Real GDP would be 0.1 percent higher in 2035—and 0.8 percent higher in 2055—than it is in CBO's baseline projections (see [Table 2](#)).

The changes in borrowing and in the size of the economy would also affect interest rates. In the short run, the Federal Reserve would slow the decline of the average federal funds rate in response to the increased demand for goods and services, causing interest rates to be higher than projected under current law. Following that initial period of stimulus, the increase in the debt-to-GDP ratio would also put upward pressure on interest rates through 2042. But thereafter, in the long run, the debt-to-GDP ratio would, in CBO's assessment, be lower under this scenario than it would be under current law because deficits would increase less than GDP, and that lower debt-to-GDP ratio would push down interest rates.

The initial increase in deficits would reduce the amount of resources available for private investment. In later years, however, the decrease in interest rates would increase, or "crowd in," private investment and amplify the long-run increase in output stemming from higher productivity.

Those macroeconomic changes would affect the federal budget. Total revenues for the 2026–2035 period would increase by \$32 billion, CBO estimates, but that increase in revenues would be partially offset by a \$21 billion increase in total outlays.

CBO estimates that, under this scenario, deficits over the 2026–2035 period—including the budgetary effects of macroeconomic changes—would be \$303 billion *larger* than they are in the agency's baseline projections. But the cumulative deficit for the 2026–2055 period would be 1.1 percent *smaller* than it is projected to be under current law. Deficits would increase over roughly the first decade of the projection period and then begin to decline in 2038.

To account for the timing of the budgetary effects, CBO estimated the present value of the future changes in deficits. The present value in 2025 of a \$300 billion increase in R&D funding financed by increasing federal borrowing is a roughly \$250 billion decrease in deficits when discounted

using Treasury rates and about a \$50 billion decrease in deficits when discount rates adjusted for market risk are used.

CBO estimates that, under Scenario 2, every additional dollar of federal investment in R&D would increase the present value of GDP over the next 30 years by an average of \$11.50 when discounted using Treasury rates and by an average of \$7.00 when discount rates adjusted for market risk are used.

The effect on the present value of GDP over the next 30 years (discounted using Treasury rates) that a dollar increase in deficit-financed R&D spending would have is about seven times larger than the effect that CBO, in its August 2021 report, estimated the same increase in infrastructure spending would have. The estimated effect of R&D spending on GDP is larger than the earlier estimate for infrastructure spending for the same reasons that it is larger under Scenario 1—namely, the greater effect on productivity of R&D spending, the different baselines underlying the two analyses, and the updates that CBO has made to its models.

I hope this information is useful to you. Please contact me if you have further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Phillip Swagel", with a long, sweeping flourish extending to the right.

Phillip L. Swagel
Director

cc: Honorable Jodey Arrington
Chairman

Table 1.

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Budgetary Effects of Two Illustrative Scenarios in Which Federal Funding for Nondefense R&D Is Increased by \$300 Billion Over 10 Years

Percentage of deficit in CBO's baseline projections

	Scenario 1: R&D funding increase financed by reducing noninvestment spending			Scenario 2: R&D funding increase financed by borrowing		
	2035	Total, 2026–2035	Total, 2026–2055	2035	Total, 2026–2035	Total, 2026–2055
Direct budgetary effects						
Outlays	0	0	0	1.5	1.4	0.5
Noninterest outlays	0	0	0	1.1	1.2	0.3
Interest outlays	0	0	0	0.4	0.2	0.2
Revenues	0	0	0	0	0	0
Increase or decrease (-) in deficit	0	0	0	1.5	1.4	0.5
Effects of macroeconomic changes						
Outlays	*	*	-0.7	0.3	0.1	-0.2
Noninterest outlays	0.1	*	0.3	0.1	*	0.2
Interest outlays	-0.1	*	-1.0	0.2	0.1	-0.5
Revenues	0.4	0.1	1.4	0.3	0.1	1.5
Increase or decrease (-) in deficit	-0.4	-0.1	-2.1	*	*	-1.7
Total budgetary effects						
Outlays	*	*	-0.7	1.7	1.5	0.3
Noninterest outlays	0.1	*	0.3	1.2	1.3	0.5
Interest outlays	-0.1	*	-1.0	0.5	0.3	-0.2
Revenues	0.4	0.1	1.4	0.3	0.1	1.5
Increase or decrease (-) in deficit	-0.4	-0.1	-2.1	1.4	1.4	-1.1

Data source: Congressional Budget Office.

R&D = research and development; * = between -0.05 and 0.05 percent.

Table 2.

[\[Return to Text 1, 2\]](#)

Economic Effects of Two Illustrative Scenarios in Which Federal Funding for Nondefense R&D Is Increased by \$300 Billion Over 10 Years

	Scenario 1: R&D funding increase financed by reducing noninvestment spending	Scenario 2: R&D funding increase financed by borrowing
Changes in real GDP (percent)		
2035	0.1	0.1
2045	0.5	0.5
2055	0.8	0.8
Change in the interest rate on 10-year Treasury notes (percentage points)		
2035	*	0.01
2045	-0.03	-0.01
2055	-0.07	-0.05

Data source: Congressional Budget Office.

GDP = gross domestic product; R&D = research and development; * = between -0.005 percentage points and zero.
