

How Economists Could Help Inform Economic and Budget Analysis Used by the US Congress

Staff of the Congressional Budget Office

The US Congress uses economic and budgetary projections, cost estimates for proposed legislation, and other analyses provided by the Congressional Budget Office (CBO) as part of its legislative process. CBO makes assessments based on an understanding of federal programs and revenue sources, reading the relevant research literature, analysis of data, and consultation with outside experts—and often relies on economic research.

This article begins with a discussion of the role of the Congressional Budget Office and then discusses how economists could conduct research that would help inform the Congress by improving the quality of the analysis and parameter

■ *The author of this article for citation purposes should be “Staff of the Congressional Budget Office.” The article includes contributions from the following CBO staff, listed here in alphabetical order: Adebayo Adedeji (formerly of CBO), Aaron Betz, Dorian Carloni, Nicholas Chase, Carrie H. Colla (formerly of CBO), Daniel Crown, Molly Dahl, Richard DeKaser, Elizabeth Cove Delisle, Devrim Demirel, Noelia Duchovny, Justin Falk, Michael Falkenheim, Ann E. Futrell, Sebastien Gay, Ron Gecan, Heidi Golding (formerly of CBO), Bilal Habib, Rebecca Heller, Evan Herrnstadt, Justin Humphrey, Nadia Karamcheva, Edward G. Keating, Joseph Kile, Wendy Kiska, Jeffrey R. Kling, Leah Koestner, Eric J. Labs, Mark Lasky, Junghoon Lee, Chandler Lester, Sarah Masi, John McClelland, Noah Meyerson, David Mosher, Jaeger Nelson, Xiaotong Niu, Daria Pelech, Jeffrey Perry (formerly of CBO), Joseph Rosenberg, Molly Saunders-Scott, Jeffrey Schafer, Chad Shirley, Emily Stern, William Swanson, Julie Topoleski, and Chapin White. Kling is the corresponding author at Jeffrey.Kling@cbo.gov.*

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estimates that CBO uses. It gives overall context and specific examples in seven areas: credit and insurance, energy and the environment, health, labor, macroeconomics, national security, and taxes and transfers. The examples are intended to be illustrative of some current priorities, not a comprehensive list.

The Work of the Congressional Budget Office

Since 1975, the Congressional Budget Office has produced nonpartisan and independent analyses of budgetary and economic issues to support the Congressional budget process. Each year, the agency produces economic forecasts and baseline projections of revenues and spending that generally follow current law as well as hundreds of cost estimates for many types of legislation (CBO 2023b). The staff preparing budgetary analyses draw on contributions by other economists and researchers who also produce dozens of related analyses for the Congress to help make CBO's work transparent and to respond to requests on topics ranging from income distribution to weapon systems.

Based on the laws that established the Congressional Budget Office, its analysis of proposed legislation ultimately focuses on federal budgetary implications. CBO primarily focuses on estimating effects on outlays. The staff of the Joint Committee on Taxation (JCT) in the Congress produces cost estimates of legislative changes to income, estate and gift, excise, and payroll taxes. For analyses of policies affecting both outlays and revenues, CBO collaborates with JCT.

When tasked with analyzing major legislative proposals that would affect health insurance choices for people under age 65, for example, the Congressional Budget Office focuses on estimating the effects on coverage, premiums, and federal spending, and the staff of the Joint Committee on Taxation estimates the tax-related budgetary effects. CBO and JCT embark on the following four-step process—using the same steps that are employed for many other types of proposals—to develop a cost estimate that reflects the middle of the distribution of potential outcomes (CBO 2020a)

(1) *Review the proposal.* The agencies read the draft proposals, often beginning with informal ones as ideas take shape and ending with a final version of the legislative language. They analyze the policy specifications in the drafts, clarify any ambiguities, and identify how the proposal would change federal laws and interact with state laws.

(2) *Develop a modeling strategy.* The agencies identify the proposal's potential key effects on individuals' and employers' health insurance decisions and the relevant effects on insurers' and states' decisions about coverage and benefits—along with effects on health care providers. They determine the timing of the effects, such as altering or starting programs or changing state laws or regulations, and review existing research, particularly on similar policies or programs. They consult with outside experts, including insurance commissioners, actuaries, benefit consultants, and researchers. They decide which models to use—ranging in complexity from

spreadsheets to simulations using thousands of lines of computer code—whether their capabilities need to be extended, and how to translate the information gathered into inputs to the models.

(3) *Model the effects of the proposal.* Having included inputs for insurers' and state governments' decisions about coverage and benefits, the Congressional Budget Office models individuals' and employers' health insurance decisions over the projection period using a microsimulation model (CBO 2021g). CBO estimates spending for Medicaid, the Children's Health Insurance Program, and other programs using program-specific models. The staff of the Joint Committee on Taxation estimates federal revenues using its tax models.

(4) *Review and write about the estimate.* The agencies review the models' output for analytical soundness and objectivity and assess the main sources of uncertainty and possible alternative outcomes. They write the cost estimate, review it for clarity, and then publish it.

The Congressional Budget Office aims to make the basis of its estimates transparent. In that effort, the agency often reports estimates of effects that are building blocks of budgetary analysis and of independent interest to policymakers. For example, CBO often reports estimated changes in health insurance or premiums for proposals that affect health insurance coverage or prices because an analysis of those outcomes is necessary to complete the estimate (for example, CBO 2022b). Lawmakers can put their own weights on different elements of such information when making their decisions about whether or not to support a particular proposal. CBO neither undertakes cost-benefit analyses—which would involve using particular weights to aggregate information—nor makes policy recommendations.

The analysis of the Congressional Budget Office generally focuses on projections over the next ten years, because the Congress's budget process tracks goals for spending and revenues over that period of time as specified in law (CBO 2023c). When feasible, CBO provides supplemental information about longer-term budgetary effects of various policies, such as for spending on physical infrastructure (CBO 2021f) and Social Security (CBO 2022e). The budget process does use present values of future cash flows beyond ten years for a few programs, like credit programs that have loans outstanding beyond that horizon. CBO estimates the net lifetime costs of new loans and loan guarantees in the year of issuance (CBO 2023g). Evaluations of the extent to which laws have achieved their goals in the past is typically undertaken by outside researchers, or within the government by agencies like the Council of Economic Advisers, the Government Accountability Office, or more focused agencies like the Environmental Protection Agency.

The Congressional Budget Office's cost estimates for legislation account for changes in the total output of the economy—through work known as dynamic analysis—in limited circumstances. According to long-standing practice, CBO's conventional cost estimates reflect the expectation that total economic output measured in current-year dollars would not change. In its estimates of the effects of increasing the minimum wage, for instance, CBO (2023k) reported results using both conventional and dynamic approaches. Although some major legislation

can have significant macroeconomic consequences—say, because it would affect the labor supply or private investment—most does not. The Congress has directed CBO to include dynamic analysis in its cost estimates, if practicable, when the gross budgetary effects of a bill would equal or exceed 0.25 percent of the economy’s output in any year. Such estimates are complicated and often time-consuming, so they are difficult to prepare if legislation is moving quickly. Even though most cost estimates do not reflect the macroeconomic effects of a particular bill, they do reflect (when relevant) the effects that changes in policy might have on people’s behavior that would, in turn, produce budgetary effects. For example, an estimate might account for the likelihood that people would take up a particular government benefit under a new law, the possibility that farmers would change what and how much they grow in response to a change in agriculture programs, or the ways that businesses might adjust their operations in response to a particular subsidy.

Credit and Insurance

The Congressional Budget Office regularly provides information to the Congress about the effects of proposed policies that would modify federal credit and insurance programs including student loans and pension insurance.

How Would Borrowers Respond to Major Changes in Repayment Plans for Student Loans?

The cost of the federal student loan program depends in part on the details of repayment plans. Starting in 2009, income-driven repayment plans have expanded: in these plans, borrowers pay a fixed percentage of their income to the student loan program, either until they have paid back the loan or until they have made a certain number of payments. However, the estimates from the Congressional Budget Office of income-driven repayment initially tended to underestimate the number of borrowers that would use those plans and the degree to which the plans would be adversely selected by borrowers with high loan balances and low income. Estimates of repayment plan choice would have benefited from empirical studies examining specific segments of the heterogeneous population of borrowers that would be affected by such policies (such as a shorter repayment period or a lower monthly payment amount) or from surveys on borrowers’ preferences. For a recent survey of the literature on student lending, see Yannelis and Tracey (2022).

A new income-driven repayment plan was finalized in July 2023, which the Congressional Budget Office has estimated will increase the cost of the federal student loan program by about \$230 billion, on a net-present-value basis, over the 2023–2033 period (CBO 2023e). Because the new plan reduced borrowers’ costs, CBO expected it to be the most popular repayment plan option and that amounts borrowed would increase under the plan. But when CBO was preparing its micro-simulation model of student borrowers (Karamcheva, Perry, and Yannelis 2020) to estimate the additional enrollment in income-dependent repayment plans, the

agency did not find research that was directly relevant to projecting a borrower's repayment plan choice or borrowing amounts. Although some studies had examined the effects of expanding the availability of student loan credit (Black, Turner, and Denning 2023; Kelchen 2019) and increasing borrowing limits (Kargar and Mann 2023; Lucca, Nadauld, and Shen 2019), there was no relevant research examining how changes in loan parameters—and in parameters of income-driven repayment plans in particular—would affect students' propensity to borrow, the amount students borrow, or how institutions might respond. Research in those areas could help inform CBO's baseline projections of student borrowing over the next ten years and, in turn, its projections of the cost of the student loan program.

How Would Sponsors of Pension Plans Respond to Changes in Government Pension Insurance?

The government provides pension insurance for the “defined benefit” pension plans of private-sector companies through the Pension Benefit Guaranty Corporation (PBGC), which has experienced funding difficulties in the past two decades. In 2005, PBGC estimated that the single-employer program faced a net shortfall of \$23 billion. The Pension Protection Act of 2006 established more rigorous funding requirements for covered plans, and PBGC now projects that the single-employer program has a positive net position of \$45 billion and will remain solvent indefinitely. The multiemployer program did not face significant exposure at the time, but developed a shortfall of \$65 billion by 2019 and faced insolvency within a few years. The American Rescue Plan of 2021 provided about \$80 billion of special financial assistance to the most financially troubled plans, but left the structure of the program largely unchanged.

Cash flows for pension insurance are tracked in the federal budget: insurance premiums from companies with such pension funds are recorded when received; claims from bankrupt funds are recorded as outlays when paid. The Congressional Budget Office and the staff of the Joint Committee on Taxation are tasked with analyzing the budgetary implications of federal policies that affect contribution requirements, premium payments, investment restrictions, and other funding rules related to pensions.

Over the past 25 years, large employers have reduced their use of defined-benefit pension plans that are covered by pension insurance and shifted to individual-level “defined contribution” plans that are not covered. This change has often been carried out by freezing the defined benefit accruals for workers and/or closing the plans to new hires. One study found that freezing pension plans saves 13.5 percent of the present value of payroll in the long run (Rauh, Stefanescu, and Zeldes 2020). Additional research that identifies the factors that are likely to lead to plan freezes, as well as the conditions that encourage plans' sponsors to retain defined-benefit pension plans, would be useful; for example, legislative proposals that would increase the number of plan freezes could reduce premium receipts for pension insurance provided by the federal government.

Similarly, little research is available on the incentives for participating employers to withdraw from multiemployer pension plans; that is, plans in which the defined benefit is run in common across employers in the same industry—thus allowing workers who switch employers within the industry to continue accruing pension benefits. At the Congressional Budget Office, modeling has focused on mass withdrawals from multiemployer plans, because they have been most closely related to insurance claims (Kiska, Levine, and Moore 2017). However, partial withdrawals where only a few firms leave a multiemployer plan have significantly affected the level of plan funding and often impose financial strain on the employers remaining in the plans. Additional research on the factors that encourage employers to remain in or withdraw from pension plans would help CBO to better estimate participation (which affects premium receipts) and plans' future financial outcomes (which affect future federal outlays).

Funding for both single-employer and multiemployer pension plans is sensitive to price volatility in financial markets in which pension assets are invested in risky securities. Moreover, federal insurance for private pension plans may encourage risk-taking. For example, one study has found that underpricing pension insurance encourages plans' sponsors to invest in risky assets (Love, Smith, and Wilcox 2011). Additional research on the factors that influence how plan administrators manage risk in response to both the pricing and the level of federal insurance would help the Congressional Budget Office estimate the government's future outlays. When lawmakers consider pension reforms, they may also be interested in the optimal pricing and structure of pension insurance, as well as its relationship with investment policy.

Energy and the Environment

Federal regulations and permitting requirements can affect the amount and composition of energy produced and used, prices of different sources of energy, and carbon dioxide (CO₂) emissions from using energy. The federal government also provides funds to prepare for disasters and reduce the resulting damage they cause. The Congressional Budget Office is particularly on the lookout for research in these two areas.

How Would Changes to the Federal Permitting Process Affect Energy Markets, CO₂ Emissions, and the Macroeconomy?

Congress often considers legislation intended to shorten the time it takes to obtain the variety of federal, state, local, or, in some cases, tribal permits or approvals required to develop infrastructure to produce and deliver supplies of energy—wind and solar generating facilities or oil and gas pipelines, among others. The National Environmental Policy Act additionally requires federal agencies to consider the potential environmental effects of their decisions when granting project approvals (Congressional Research Service 2022; Council on Environmental Quality 2021).

Although some projects qualify for abbreviated review under this legislation, others are subject to extensive environmental study—particularly infrastructure that covers long distances and crosses multiple jurisdictions, such as natural gas pipelines and electric transmission lines. Some industry analysts and lawmakers have raised concerns that the time required for those environmental reviews has grown lengthy (Dourado and Smith 2020).

Again, the Congressional Budget Office is responsible for estimating the effects of proposed legislation on the federal budget (for example, CBO 2023f, 2019b, 2018b) and for incorporating those effects in its baseline projections if the legislation is enacted. For example, shortening the period for preparing and finalizing an environmental impact study under the National Environmental Policy Act could affect the budget through at least two channels. First, reducing permitting timelines would probably accelerate project development and boost royalty payments on oil and gas produced on federal lands, for example. The increase in production would come from reducing the amount of time projects await federal approvals and from a greater propensity for developers to invest in new projects. Second, increases in aggregate productivity from greater capital investment and from lower costs of energy would generate broader macroeconomic effects that, in turn, would increase tax revenues.

Analyzing the effects of regulations on businesses and the economy has been an active line of research (Coffey, McLaughlin, and Peretto 2020; Dawson and Seater 2013; Djankov, McLiesh, and Ramalho 2006). However, little research has considered the expected economic and environmental effects in energy-producing sectors from changes to permitting or to environmental reviews under the National Environmental Policy Act or other laws. A recent report on the nonbudgetary effects of charging the oil and gas industry for methane emissions (CBO 2022d) made use of the available, albeit limited, research in that area.

Some research has considered federal environmental protections as a whole but has not identified the relative importance of particular requirements for environmental protection (Lewis 2019). Other studies have focused on specific environmental protections but not the role of environmental review under the National Environmental Policy Act (Ryan 2012; Greenstone 2002). Research that evaluates how changes to the federal permitting process and related environmental reviews would affect domestic energy sectors, CO₂ emissions, and the macroeconomy could enhance the Congressional Budget Office's analysis.

How Would Changes in Federal Spending on Climate Change Adaptation Affect Damage?

When hurricanes and other natural disasters occur, lawmakers often fund construction projects to better adapt to climate change and provide financial assistance to people affected. Over the 2005–2021 period, appropriations for the Army Corps of Engineers averaged about \$9 billion a year (CBO 2022a). Over the 1992–2021 period, appropriations for the federal Disaster Relief Fund averaged about \$13 billion (CBO 2022c). The Congressional Budget Office is also often asked to

provide the Congress with information about how increased federal spending on measures to adapt to climate change, such as improving levees or elevating structures, might reduce the amount of damage from flooding or from other effects of the changing climate (CBO 2023h, 2019c, 2016).

In the past, the Congressional Budget Office has drawn upon an analysis of a small sample of adaptation projects (Multihazard Mitigation Council 2005) to estimate the potential cost savings attributable to spending on the Federal Emergency Management Agency's Pre-Disaster Mitigation Program (CBO 2007). A recent update of the underlying analysis did not appreciably increase the size or representativeness of the sample (National Institute of Building Sciences 2019).

The research on adaptation to climate change generally falls into three categories. First, some studies directly estimate the relationship between historical spending and subsequent disaster damage (for example, Davlasheridze and Miao 2021). One limitation of those studies is that the estimate might not reflect future savings if climate change and economic development substantially altered the earlier risks of damage. Second, other studies estimate how the presence of infrastructure intended to mitigate damage from disasters affects property values (Kelly and Molina 2023; Bradt and Aldy 2023). Those studies can reflect expectations about amounts of damage in the future, but the results will be biased to the extent that people have imperfect information or misperceive risk. Third, studies can rely on engineering-based models of disaster damage rather than econometric estimates (Neumann et al. 2021; Wobus et al. 2021; Johnson et al. 2019; Aerts et al. 2014). For example, those studies can simulate many years of hypothetical flooding rather than relying on a small sample of historical disasters. However, such models are subject to considerable uncertainty. Also, they do not typically account for behavioral responses by households, businesses, and state and local governments, which could increase risk or reduce complementary spending and affect the net reduction in damage.

The Congressional Budget Office is conducting research on the effects of federal spending on climate change adaptation, and that work would be enhanced by additional research that extends, compares, and combines different approaches to help fill gaps in the literature. Studies that cover more federal disaster mitigation programs, additional kinds of disasters, and federal programs that promote adapting to climate impacts beyond property damage (for instance, funding research on developing climate-resilient crops) would be particularly useful.

Health Care

When the Congressional Budget Office projects federal subsidies for health care, it begins by estimating enrollment in various forms of health insurance coverage, premiums for that coverage, and prices and the use of medical items and services. Those projections, in turn, require estimates of certain parameters to construct equilibrium prices, premiums, and use of services. CBO relies on its

own analyses and on estimates from the relevant research literature to inform its estimates of those parameters. For instance, after reviewing evidence about how changes in health care providers' payment rates affect the supply of their services, CBO updated how it estimates supply responses. At present, two subjects of particular interest are how health care providers would respond to changes in federal policies and the market for long-term services and supports.

How Would Health Care Providers Respond to Shocks to Revenues or Costs?

The Congressional Budget Office frequently analyzes policies affecting health care providers' payment rates or their costs of providing care (CBO 2022f). For example, policies can directly affect providers' revenues by changing the administered prices for services covered by Medicare. Alternately, they can affect the amounts paid to providers by commercial insurers by changing the bargaining leverage between them. The prices paid to providers by commercial insurers have a large effect on the federal budget: if prices paid for hospitals' and physicians' services were reduced by 1 percent, for instance, federal subsidies for health insurance premiums would be reduced by \$4.4 billion for employment-based insurance in 2032, CBO estimates.

There is a long-standing concern that payment changes—particularly cuts—could impact the availability of care. However, providers have many ways to adjust to payment changes. For example, reducing the volume of care they provide, particularly for elective procedures (Clemens and Gottlieb 2014); reducing staffing (Wu and Shen 2014); or changing how they code diagnoses (Dafny 2005). A better understanding of how adaptable providers' cost structures are, the major components of their fixed and variable costs, and how they respond to changes in revenues would enhance analysis by the Congressional Budget Office of current policies and legislative proposals.

The Congressional Budget Office also evaluates policies that affect providers' administrative burdens, such as streamlining requirements to obtain prior authorization for medical services. Based on evidence from Curto et al. (2019) and Dunn et al. (2021), the agency estimates that lessening a provider's administrative burden would tend to increase the amount of care the provider delivers, thereby increasing federal spending. Additional evidence would be helpful in refining those and other estimates.

How Would Changes in Medicaid's Benefit for Long-Term Services and Supports Affect the Federal Budget?

Medicaid is the predominant payer for long-term services and supports, which consist of health care and related services to help people who have functional or cognitive limitations in performing routine daily activities over an extended period. Roughly 65 percent of total national spending for these services are paid by the federal government. In CBO's projections, by 2033, federal Medicaid spending on home and community-based services reaches \$116 billion, and such spending on institutional care is an additional \$53 billion (CBO 2023j). Those projections reflect

estimates of enrollment in Medicaid, growth in payment rates for providers of long-term services and supports, and an expectation of a continued shift in the delivery of care from institutions to community settings.

Policy changes, such as expanded Medicaid eligibility, can affect the demand for care in nursing homes (Van Houtven et al. 2020; Grabowski and Gruber 2007). Analyses by the Congressional Budget Office could benefit from additional research on the population with needs for long-term services and supports and, specifically, how changes in federal policy would affect the share of people using institutional care or home and community-based services.

The Congressional Budget Office uses several models to estimate how changes in Medicaid eligibility, benefits, or payment rates would affect the federal budget. In addition, the agency is developing a microsimulation model to better represent the distribution of individual responses to policy changes—instead of an approach focused on average responses—and important relationships between key variables, such as income and the use of long-term services and supports (Goda, Golberstein, and Grabowski 2011). Depending on the details of the policy being analyzed, CBO’s models may account for the substitutability of paid and unpaid care, changes from private or state funding to federal funding, the supply of workers, and whether changes in the use of long-term services and supports affect the use of medical services, among other factors. Additional research on those topics would improve CBO’s estimates of the effects of policies in this area.

Labor Markets

The Congressional Budget Office provides the Congress with information about the effects of proposed income support policies on outcomes in the labor market (for example, CBO 2021c, 2021e). The agency also estimates the budgetary and (when relevant) macroeconomic effects of legislative proposals in these areas (for example, CBO 2021h) and incorporates such effects into its baseline projections for legislation that is enacted. To help inform such work, CBO is on the lookout for new research on various topics in the area of labor, including immigration and child care.

How Does Immigration Affect Productivity?

In 2013, the Congressional Budget Office analyzed a large immigration reform bill (CBO 2013). For that analysis, the agency projected the legislation’s direct effects on the size of the US population, employment, and taxable compensation—and then incorporated those projections into its cost estimate. Since then, CBO has continued developing additional capacity to analyze a wider range of effects of changes in immigration policy. For example, the agency uses its macroeconomic models (discussed in the next section) to estimate changes in the income earned by capital, the rate of return on capital (and therefore the interest rates on government debt), and the differences in wages for workers with different skills. Recently,

leveraging those modeling tools, CBO has incorporated an increase in population, mostly because of higher net immigration, into its macroeconomic forecast (CBO 2024).

Of particular interest is how immigration policy can affect the productivity of labor and capital; that is, how immigration policy can affect the education, work experience, and other skills of immigrants, along with on how those immigrants affect other workers, the allocation of capital, and technological progress. Relatively few studies have estimated the effect of immigration on total factor productivity (Aleksynska and Tritah 2015; Ortega and Peri 2014a, 2014b, 2009), and only two have focused specifically on the United States (Peri 2012; Prato 2022).

Further research on two aspects of immigration's effect on productivity could enhance the Congressional Budget Office's analysis: more information about how the effect of immigration on productivity varies depending on the skill composition of immigrants; and evidence about the timing of how any effects of immigration on productivity will occur. Of course, how immigration affects productivity would also inform CBO's modeling of immigration's broader economic effects.

How Would Changes in Federal Funding for Child Care Affect Families with Children and the Child Care Industry?

For analysis of legislative proposals related to child care, the Congressional Budget Office relies on published empirical evidence and experts' opinions, including academic researchers, state administrators of child care subsidies, and child care providers (CBO 2021d). CBO's analysts seek to assess how changes in federal funding for child care, including early childhood education, would affect families' choices in the labor market as well as the demand for and supply of child care. The effects can be economic (labor force participation of parents), distributional, and budgetary.

On the demand side, researchers have studied how changes in the availability of child care affect parents' involvement in the labor force (Li 2020; Cascio and Schanzenbach 2013; Fitzpatrick 2010). Studies of subsidized child care have focused on low-income families (Michalopoulos 2010; Berger and Black 1992). The Congressional Budget Office could benefit from research that demonstrates how those subsidies affect the labor supply of middle- or higher-income families. Also, CBO welcomes input on the take-up rates of child care subsidies among eligible families, on the extent to which families shift between unpaid care and paid care, and on the ways that large shifts in demand would affect the cost of care for families (Borowsky et al. 2022).

On the supply side, studies of the wage elasticity of child care workers and the speed at which the supply of child care (both the physical infrastructure and labor supply) would increase in response to a shift in demand could be useful in estimating the budgetary and economic effects of various policy proposals. Research on states' involvement in child care (GAO 2023) also could enhance the Congressional Budget Office's analyses. For instance, such research could shed light on how states

used the additional federal child care funding they received during the coronavirus pandemic, as well as their responses when that funding expired.

Macroeconomics

A team of analysts at the Congressional Budget Office regularly prepares forecasts of key economic variables, including output, income, employment, inflation, and interest rates. The agency also evaluates the macroeconomic effects of proposed or enacted legislation. The team closely follows economic developments and data, consults with experts within and outside the agency, and uses several models, including a large-scale macroeconometric model (Arnold 2018). CBO uses a suite of models to analyze the short- and longer-term economic effects of changes in fiscal policy. In its view, fiscal policy affects the economy in the short term mainly by altering the aggregate demand for goods and services. To analyze those effects, CBO considers empirical evidence about how households, businesses, and federal, state, and local governments would respond to changes in certain policies. CBO also uses structural models that describe how policy changes would affect economic output, employment, interest rates, inflation, and other macroeconomic variables (Lasky 2022; CBO 2020b, 2014). To analyze the longer-term economic effects of fiscal policy stemming from changes in national saving, people's incentives to work and save, and businesses' incentives to invest, the agency generally uses a Solow-type growth model (CBO 2021b) and a life-cycle growth model (CBO 2019a; Reichling and Nishiyama 2015). CBO also uses dynamic general-equilibrium models and vector autoregression models to assess specific aspects of policies and the uncertainty of the economic effects of policy changes. At present, CBO is particularly on the lookout for new research on trends in productivity growth and on interest rates on Treasury securities.

How Will Future Rates of Productivity Growth Differ from Those in the Past?

In the long-term economic projections from the Congressional Budget Office, growth of total factor productivity—referred to here as just “productivity”—accounts for more than half of the growth of real gross domestic product. The agency draws on academic research to assess trends in productivity growth and to estimate the effects of policy changes on productivity. That research has developed methods to assess how the trend growth rate of productivity varies across business cycles and changed during the coronavirus pandemic; whether productivity growth is additive or geometric; and the contributions to growth from factors such as workers' average educational attainment, federal investment, and climate change (Fernald and Li 2022; Philippon 2022; CBO 2021e; Bom and Ligthart 2014). Further research that identifies how those lessons from the past can be applied to projections of future productivity growth could enhance CBO's projections of economic growth, tax revenues, and government spending.

How Will Future Interest Rates Differ from Those in the Past?

The real rate of return on safe assets—like Treasury securities—has declined considerably in recent decades (Rachel and Smith 2017). Researchers have examined the role of several factors in the dynamics of the returns on safe and risky assets: labor force growth, private domestic and foreign saving rates, total factor productivity growth, the debt-to-GDP ratio, risk premiums, and capital's share of income (Gamber 2020). Better understanding the magnitude and persistence of each factor and also of the linkages between the rates of return on investments in risky assets (such as physical capital) and Treasury securities would enhance the framework that the Congressional Budget Office uses to project interest rates—especially rates 5 to 30 years in the future—and net interest payments on federal debt as debt is projected to rise substantially in the future.

National Security

The US Department of Defense received about \$850 billion in funding in 2023. With those funds, it hires personnel (members of the military and civilian employees) and purchases a variety of goods and services from private-sector companies—ranging from ordinary office supplies to highly complex weapon systems. Some current subjects of particular interest to the Congressional Budget Office include the consequences of the military's extensive use of in-kind compensation and the causes of, and future trends in, sector-specific inflation.

What Are Some Implications of the Military's Compensation System?

The military compensation system is very complex. The Department of Defense uses a combination of methods to attract and retain members of the military and to boost productivity that is unique in the labor market: binding contracts for service commitments, bonuses, annuity payments, compensation on the basis of family status, and in-kind compensation. Members in some high-demand occupations may be eligible for reenlistment bonuses. Service members receive a larger housing allowance when they have dependents, and they receive extensive medical care and access to subsidized food stores and recreational facilities. Upon reaching 20 years of service, a member of the military becomes eligible to receive an annuity (after leaving the service) that generally amounts to between 40 percent and 50 percent of their annual basic pay, indexed for inflation.

Analysis of the military's compensation system by the Congressional Budget Office would be enhanced by more information about the consequences of in-kind compensation, which might build on existing research (Patterson, Petkun, and Skimmyhorn 2019). For example, how much do military-aged civilians value direct cash compensation compared with in-kind compensation, such as health care benefits? What is known about the selection effects of different types of compensation—for example, how do enhanced health insurance coverage, generous retirement

benefits, or subsidized childcare, gym memberships, and wellness programs affect employee attraction and retention?

By How Much and for How Long Can Inflation in Some Sectors Exceed Overall Inflation?

Government acquisition of complex weapon systems differs considerably from the way most goods in the economy are purchased. A small number of companies produce such weapons in a capital-intensive industry with high barriers to entry. There is no private-sector demand for such weapons in the United States, sales to foreign governments are prohibited without government approval, and in many cases the Department of Defense cannot credibly enforce fixed-price contracts.

Naval vessels are a canonical example of a product in a monopsony—a market with the Department of Defense as the single buyer. Moreover, the Navy’s ships are manufactured by a small number of private-sector companies. Each year, the Navy submits a report to the Congress about its planned procurement of ships over the next 30 years. The Congressional Budget Office has a legislative mandate to analyze the costs of those plans (for example, CBO 2023a).

Estimates of future shipbuilding costs by the Congressional Budget Office have been consistently higher than the Navy’s. That is partly because, unlike the Navy, CBO projects that the costs of labor and materials in the shipbuilding industry will continue to grow at a faster rate than prices in the economy as a whole—as they have over the past several decades. Projections of unending supernormal cost growth in a specific sector of the economy would seem to be out of equilibrium; but such pessimistic medium-term projections of shipbuilding costs have been borne out heretofore. Other parts of the broader economy, such as hospital services and college tuition, have also experienced price increases far above the economy-wide average for many years (Perry 2022). It is unclear how long such supernormal price increases should be expected to continue.

Analysis of the likely costs of the Navy’s shipbuilding plans could be enhanced by research on fundamental questions about sector-specific inflation in consumer and producer prices. In other economic sectors that have experienced supernormal price increases for long periods, what caused the increases? Are sectors with limited competitive pressures especially prone to supernormal inflation? In cases in which supernormal, sector-specific inflation ended, what caused it to end?

Taxes and Transfers

The Congressional Budget Office regularly provides the Congress with information about the ways that the government’s tax and transfer system affects the distribution of household income (for example, CBO 2023i). That analysis is built on the models and data underlying the agency’s baseline projections of revenues and spending (CBO 2023d). The method CBO uses for projecting each revenue source in its baseline varies and depends on available information. For example,

individual income taxes are projected using a microsimulation model to project the effects of tax rules using a detailed sample of tax filers (CBO 2018a), whereas revenues from the corporate income tax are projected using more aggregate methods (CBO 2023i). In this area, CBO is on the lookout for new research that would enhance its analysis of taxes and transfers, particularly including research related to distributional analysis across households and the effects of the tax system on the legal structure of businesses.

How Do Changes in Federal Policy Affect Different Households?

To estimate the effects of policy changes on households along the income distribution, the Congressional Budget Office allocates to households the net dollar value of the resource costs incurred by the federal government (Habib and Heller 2022). For cash transfers and most taxes, CBO allocates the taxes and transfers according to the dollar value that households receive or pay. In other cases, including when a firm interacts with the government, CBO relies on evidence in the economic literature (Gravelle 2010, 2011) to determine how to allocate the resource costs of the government's actions. For example, the agency allocates corporate income taxes to households in proportion to their capital income (75 percent) and labor income (25 percent). For in-kind transfer programs, such as Medicaid and Medicare, CBO currently allocates 100 percent of the resource cost to people receiving coverage. For public goods and other broad-based government spending, CBO has previously allocated the resources to households by using a combination of two methods: allocating in proportion to each household's share of the population, and in proportion to each household's share of total income.

This distributional analysis differs from an examination of economic incidence, which focuses on how prices and quantities of goods and services change when government revenues or spending change and assesses who is affected by those changes and their valuation of the change. Unlike that kind of analysis, the agency's distributional allocation of resource costs is an extension of budgetary accounting that focuses on the government's revenue collections, costs of providing a good or service, and who is affected.

Research that provides more information about the impact of federal policies on households' net resources would be useful. One example is research on how to allocate resource costs for Medicaid across households. Based on a randomized experiment from expanding Medicaid coverage in the state of Oregon, Finkelstein, Hendren, and Luttmer (2019) found that only about 40 percent of the resource cost of the program accrued to people who received coverage, with the remainder accruing to providers and other parties. It is unclear whether the results from that study apply broadly to the entire Medicaid program; but, given the program's size, even modest differences in the allocation could have significant effects on the pattern and trends of household income, especially among lower-income groups. Additional research that provides estimates of the distributional effects of Medicaid and also of other health-related spending, especially in different institutional settings, would be useful.

The distributional effects of policies may differ depending on the time horizon considered or the overall state of the economy (Saez and Zucman 2023). Allocations by the Congressional Budget Office generally do not reflect those differences. For the employer share of the Social Security and Medicare payroll tax, for example, the agency has estimated that employers make adjustments to how much is passed along to employees over time, but the average amount of time they take to make that adjustment is unclear (Carloni 2021). CBO generally focuses on the long-term effects of policy changes when assessing how to make allocations—not only for the sake of simplicity and tractability, but also because distributional effects can be compared consistently with the baseline distribution of household income and other policy changes in the long term. However, Congress may be particularly interested in differences in the short- and long-term effects of policies or in the effects of policies that differ depending on the overall state of the economy. Additional research along those dimensions would allow CBO to better estimate such effects.

How Do Federal Taxes Affect the Way Businesses Are Legally Structured?

The tax treatment of income derived from business activity will differ in significant ways depending on the legal form of the business entity. Many large corporations pay the corporate income tax on their profits. But “pass-through businesses” in which profits are “passed through” to owners—including sole proprietorships, partnerships, and S corporations—are reported and taxed under the individual income tax. In that case, the resulting tax liability depends on the total amount and composition of an owner’s income sources, as well as certain demographic characteristics and details related to the tax filing. The Congressional Budget Office generally allocates profits of pass-through businesses to each individual owner, so the choice of a business’s legal structure also matters for the agency’s distributional analysis.

In general, baseline projections from the Congressional Budget Office reflect scheduled tax changes under current law. At the end of 2025, certain provisions of the 2017 tax act are scheduled to expire, which will increase the tax rate on income earned within pass-through entities—whereas the corporate income tax rate of 21 percent will remain unchanged. Thus, even just projecting what will happen based on current law requires estimates of how changes in tax law affect the legal structure of businesses. Much of the existing literature on that front focuses on periods before the increase in pass-through business activity that occurred in the past few decades (Goolsbee 1998; Mackie-Mason and Gordon 1997), or on areas outside the United States (Tazhitdinova 2020).

The role of taxes in determining the legal structure of businesses has distributional implications, too. For example, tax-motivated changes in organizational structure over time account for about one-third of the decline in the measured share of income going to labor (Smith et al. 2022), because income from running a pass-through business is treated as “capital income,” rather than labor income. That effect on measurement arises in part because of differences in the taxation of

wages and business income between corporations and other pass-through entities (CBO 2012).

Conclusion

The Congressional Budget Office gathers information from the research community in many ways, including consulting the research literature, meeting with experts, obtaining written feedback on draft material, and discussing its work in seminars and conferences. Researchers sometimes work temporarily at CBO for four to twelve months as dissertation fellows or visiting scholars. They may collaborate on research published in professional journals or disseminated to staff on Capitol Hill or to the general public, using many sources of data including those assembled by CBO for policy analysis. Such researchers may also analyze how people would respond to legislative proposals and help develop models that incorporate those responses. In addition, CBO has two panels of advisers: one focused on health and the other on the macroeconomy. Their members represent a variety of perspectives, enabling the agency to gather information and insights from experts with diverse views as well as from the interactions between those experts at panel meetings. CBO's work benefits greatly from its engagement with the research community and especially from the willingness of researchers to spend time providing input that is tailored to help answer questions posed by the US Congress.

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