Policies to Reduce Federal Budget Deficits by Increasing Economic Growth

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Abstract

Could policy changes boost economic growth enough and at a low enough cost to meaningfully reduce federal budget deficits? We assess seven areas of economic policy: immigration of high-skilled workers, housing regulation, safety net programs, regulation of electricity transmission, government support for research and development, tax policy related to business investment, and permitting of infrastructure construction. We find that growth-enhancing policies almost certainly cannot stabilize federal debt on their own, but that such policies can reduce the explicit tax hikes, spending cuts, or both that are needed to stabilize debt. We also find a dearth of research on the likely impacts of potential growth-enhancing policies and on ways to design such policies to restrain federal debt, and we offer suggestions for ways to build a larger base of evidence.

Publicly held debt of the U.S. government now roughly equals annual output, nearly the highest mark in history and about twice the average of the past fifty years. More worryingly, the Congressional Budget Office (CBO 2025a, 2025c) projects that federal debt will rapidly rise further relative to output under current policies. That path cannot be sustained indefinitely, and as debt rises, national savings and the domestic capital stock are diminished, the government's capacity to respond to emerging problems is lessened, and the risk of a fiscal crisis is intensified (Dynan and Elmendorf 2025). Accordingly, many policymakers have expressed their desire to reduce federal budget deficits and lower the trajectory of debt.

Meanwhile, economic growth in the United States has been strong in recent years compared with growth in most other advanced economies. But the pace of growth has been below the average U.S. experience of the past half-century because lower fertility has slowed the expansion of the working-age population and because the rate of increase in total factor productivity has been below its historical average. Faster economic growth would help working people achieve higher living standards and would help provide for the rising share of the population that is retired. So, many policymakers are seeking ways to boost economic growth.

As leaders consider policy changes that could spur economic growth and policy changes that could reduce federal deficits, they might be especially interested in policy changes that could accomplish *both* goals. Specifically, policy changes designed to increase output might be a useful complement to the traditional deficit-reducing options of directly raising taxes and cutting government spending. Higher output reduces federal debt by leading to higher tax revenue and often somewhat lower spending, and it also makes any given amount of debt relatively less burdensome.

Of course, reducing deficits by increasing output is easier said than done. Some policy changes that would raise output would have such a small effect that they would barely alter the path of debt. Other policy changes that would raise output significantly would have such large budgetary costs that the path of debt would be little changed or higher.

Could policy changes boost output enough and at a low enough direct budgetary cost to meaningfully reduce federal deficits? In this paper, we offer a path for answering this question by assessing seven areas of economic policy: immigration of high-skilled workers, housing regulation, safety net programs, regulation of electricity transmission, government support for research and development, tax policy related to business investment, and permitting of infrastructure construction. Other areas of economic policy (such as health care) also offer opportunities for growth-enhancing policy changes, but the areas we discuss are among those that have received the most attention from

policymakers and researchers, and they differ in ways that illustrate key issues for evaluating potential policy changes in other areas.[1]

Analyzing policies solely in terms of their effects on output and the federal budget leaves aside many important considerations. Some policy changes that would increase economic growth and reduce budget deficits might adversely affect other crucial aspects of society, such as the distribution of income, national security, and the environment. Indeed, policy evaluation often involves metrics that are linked more explicitly to people's well-being than are growth and deficits. However, economic growth and budget deficits play a large role in many policy discussions, even though the links between them and the influence of policies on them are not well understood. Our goal in this paper is to enhance that understanding.

We reach three principal conclusions. First, stabilizing federal debt relative to output will almost certainly require some explicit spending cuts, tax increases, or both, because we have found no evidence that plausible growth-enhancing policy changes can stabilize the debt-to-GDP ratio on their own. But second, a collection of growth-enhancing measures probably could make a substantial difference in output, and some of those measures would do so at a low enough direct budgetary cost that they would reduce the explicit tax increases and spending cuts needed to stabilize debt. And third, there is a dearth of research on the likely impacts of potential growth-enhancing policies and on ways to design such policies to restrain federal debt; we offer suggestions for ways to build a larger base of evidence.

Linkages Between Budget Deficits, Economic Growth, and Government Policies

Before turning to the case studies, we address the key connections between deficits, growth, and policies, as well as the ways those connections are analyzed by government agencies that support the policymaking process.

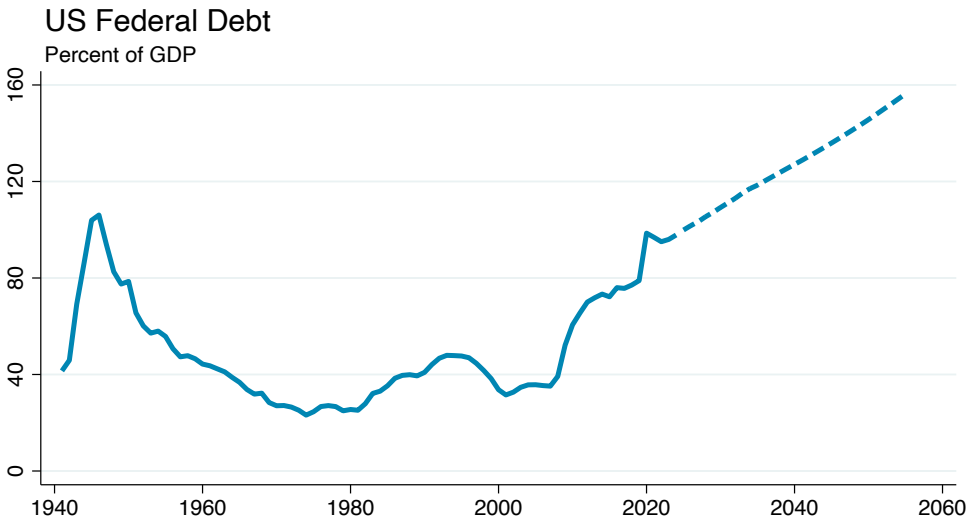
Projected Federal Budget Deficits and Economic Growth

The consequences of federal borrowing generally depend on the magnitude of federal deficits and debt relative to national output and income, which represent the resources

[1] Previous efforts to address budget and growth challenges together include Elmendorf's (2015) five-part agenda of budget policies to spur growth, the International Monetary Fund's (2015) analysis of a range of policies to strengthen economic growth while achieving sustainable fiscal outcomes, and the Grand Bargain Committee's (2024) proposal for a set of policies to foster economic growth and put the budget on a sustainable path.

potentially available for meeting the government's obligations. Therefore, discussions of fiscal policy often focus on the ratios of deficits and debt to gross domestic product (GDP).

Federal debt held by the public, which roughly equals the cumulation of previous deficits, is now about as large as annual output, compared with about one-third of annual output on the eve of the financial crisis in 2007.[2] That dramatic jump in the debt-to-GDP ratio, which is shown in the figure below, stems from two main factors: First, deficits have been large even in years with solid economic performance because of a growing imbalance between, on the one hand, federal spending that is rising relative to GDP due to the aging of the population and increases in health care spending, and, on the other hand, federal tax revenue that shows no trend over time relative to GDP. Second, deficits were especially large during and after the recessions of 2007-2009 and 2020, because of the automatic drop in tax revenue and increase in spending that occur when incomes fall and because of the responses of fiscal policy to those downturns.



Data source: Congressional Budget Office 2025 *Long-Term Budget Outlook*.
Dashed line is projection. Last data point: 2055.

CBO projects that, under current law, ongoing large budget deficits will further push up federal debt sharply relative to output in the coming years. Moreover, that projection understates the debt that would be incurred if current *policies* stayed in place, primarily because current law includes the expiration at the end of 2025 of parts of the large tax cuts enacted in 2017. To be sure, budget projections are highly uncertain. But plausible

[2] Debt only "roughly" equals the cumulation of previous deficits because of various government financial transactions. Debt held by the public includes debt held by the Federal Reserve, and more comprehensive measures of the federal government's financial position consolidate the Federal Reserve's balance sheet and include other federal assets and liabilities. However, such adjustments do not alter our key points.

alternatives to CBO's projections of key economic and budget factors are not sufficient to completely flatten the debt-to-GDP ratio over the next few decades (Dynan and Elmendorf 2025).

If debt rose ever higher relative to GDP, federal interest payments on the debt would rise ever higher relative to GDP as well. Such increases could not be sustained indefinitely: At some point, policy changes will be needed to stabilize debt relative to GDP.

In considering potential changes, it can be helpful to view the path of the debt-to-GDP ratio as a race between the growth of debt and the growth of GDP. One approach to stabilizing the debt-to-GDP ratio is to enact policy changes that would directly restrain the growth of debt, such as raising taxes or cutting government spending. Another, potentially complementary, approach is to enact policy changes that would raise the growth of GDP. Policy changes that raise GDP growth hold down the debt-to-GDP ratio mechanically by increasing the denominator of that ratio, and they also can affect the numerator of that ratio through two channels that generally work in opposite directions: Higher GDP implies higher taxable income, which reduces deficits and debt; however, some policy changes that boost GDP have budgetary costs themselves, which increases deficits and debt. The net effect on the debt-to-GDP ratio of policy changes that spur GDP growth depends on the combination of these factors.

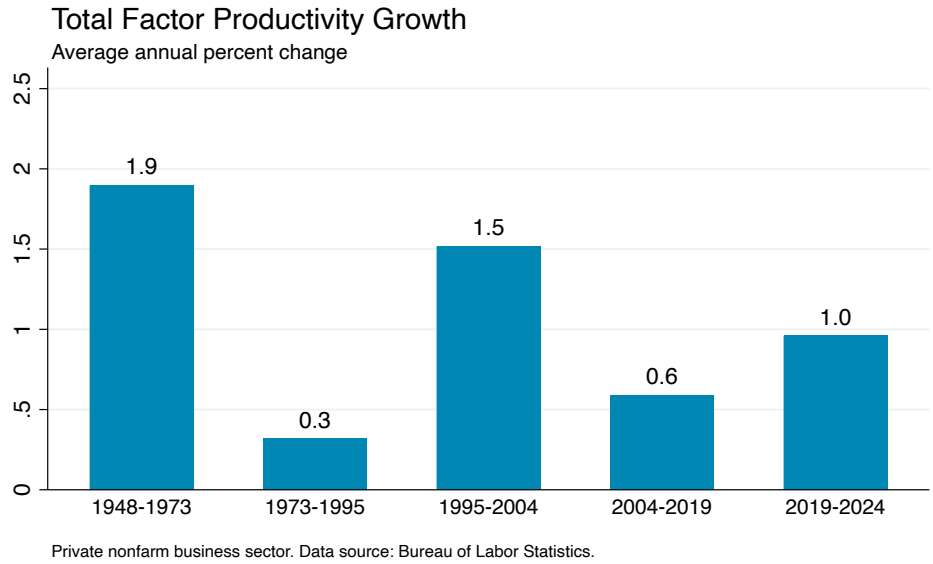
To explain further, and to quantify the effect of faster economic growth on deficits and debt, we turn next to scenario analysis by CBO.

Sensitivity of Deficits and Debt to Faster Productivity Growth

A key component of economic growth is growth in total factor productivity, which has varied considerably over time as shown in the figure below. Total factor productivity growth averaged nearly 2 percent per year for the first few decades after World War II and then just a few tenths of a percent per year from the mid-1970s to the mid-1990s; it rebounded between the mid-1990s and mid-2000s before slipping again. Accordingly, CBO recognizes the significant uncertainty regarding future productivity growth, and the agency regularly publishes economic and budgetary scenarios with growth rates that differ from the growth rate in CBO's central projection.

CBO (2025b) estimated the effects on the federal budget if the growth rate of total factor productivity was 0.1 percentage point below CBO's central projection in each year of the coming decade. CBO reported that its estimates were symmetrical for decreases and increases in productivity growth and could be reliably scaled up to deviations of

0.5 percentage point. It is most useful for our purposes to present the results as regarding an increase in annual productivity growth of 0.5 percentage point.



Private nonfarm business sector. Data source: Bureau of Labor Statistics.

In this scenario, output and income would be higher than they otherwise would be. Output depends on capital, labor, and total factor productivity, so higher productivity raises output directly.[3] Moreover, the boost to productivity increases the wage rate, and the higher wage rate increases labor force participation, which raises output further. The boost to productivity and the increase in labor force participation increase the rate of return on capital, which encourages investment. Together, the higher returns to labor and capital as well as the increases in labor force participation and capital investment generate an increase in income that matches the increase in output.

Interest rates would be higher in this scenario because the higher return to capital would increase the demand for loanable funds generally. If the United States was a small open economy, increased demand for capital here would not affect interest rates, but evidence suggests that international capital flows offset only part of shifts in U.S. domestic saving and investment. In CBO's modeling, an increase in productivity growth of 0.5 percentage point leads to an increase in interest rates of roughly 0.5 percentage point as well.

[3] Output depends also on the *demand* for output, which can fall short of (or exceed) potential output as determined by capital, labor, and productivity. But because the Federal Reserve aims to keep demand roughly aligned with potential output, and because lowering the debt trajectory requires faster economic growth for a sustained period, we leave aside any issues regarding demand.

Those economic changes would reduce federal budget deficits and debt. With more income, tax revenue would be higher, and indeed higher relative to GDP because the progressive income tax code with tax brackets indexed only for inflation means that increases in inflation-adjusted income push more income into higher tax brackets. However, the favorable effect on the deficit of higher tax revenue would be offset in part by higher federal spending. Spending apart from interest payments on the debt would increase a little—for example, because higher earnings feed through over time to higher Social Security benefits. In addition, interest payments on the debt would be higher, as the rise in interest rates dominates the reduction in borrowing that stems from the increase in revenue relative to noninterest spending.

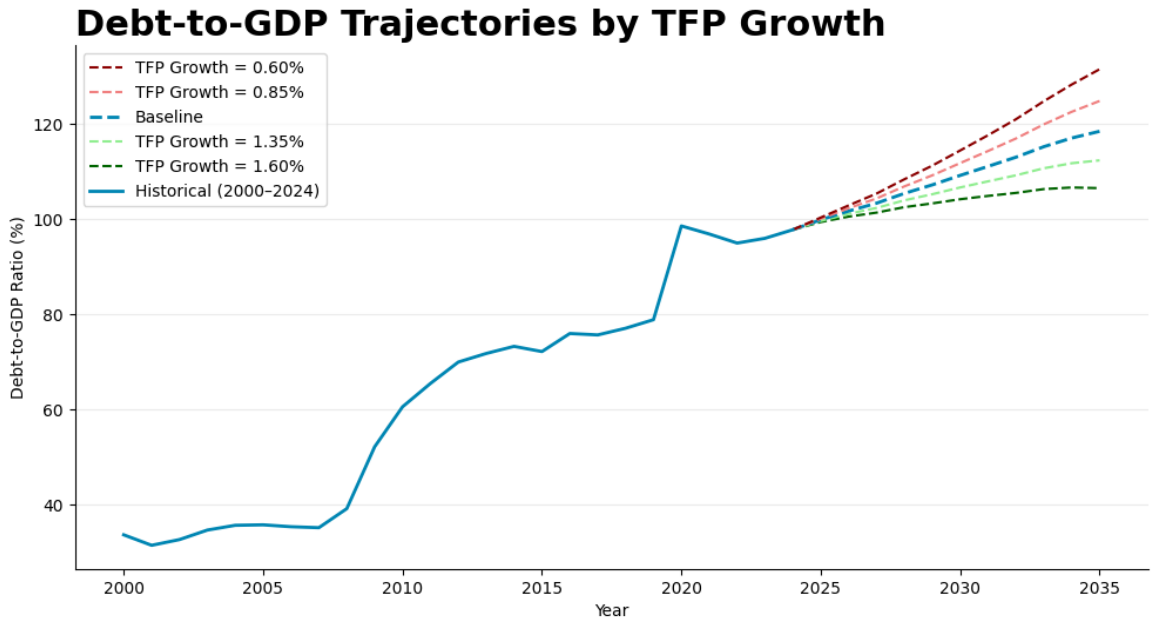
The last part of the story is that the reduction in deficits and debt would lessen the crowding out of private investment. Greater investment would lead to faster growth of the capital stock.

All told, the results in CBO (2025b) imply that a 0.5 percentage point increase in annual total factor productivity growth throughout the coming decade would, by the end of the decade, raise inflation-adjusted GDP by 7 percent, reduce the budget deficit by 1.2 percent of GDP, and make debt held by the public roughly 12 percent of GDP smaller. In dollar terms, the budget deficit would be nearly $400 billion smaller by the end of the decade, and debt would be nearly $2 trillion smaller.

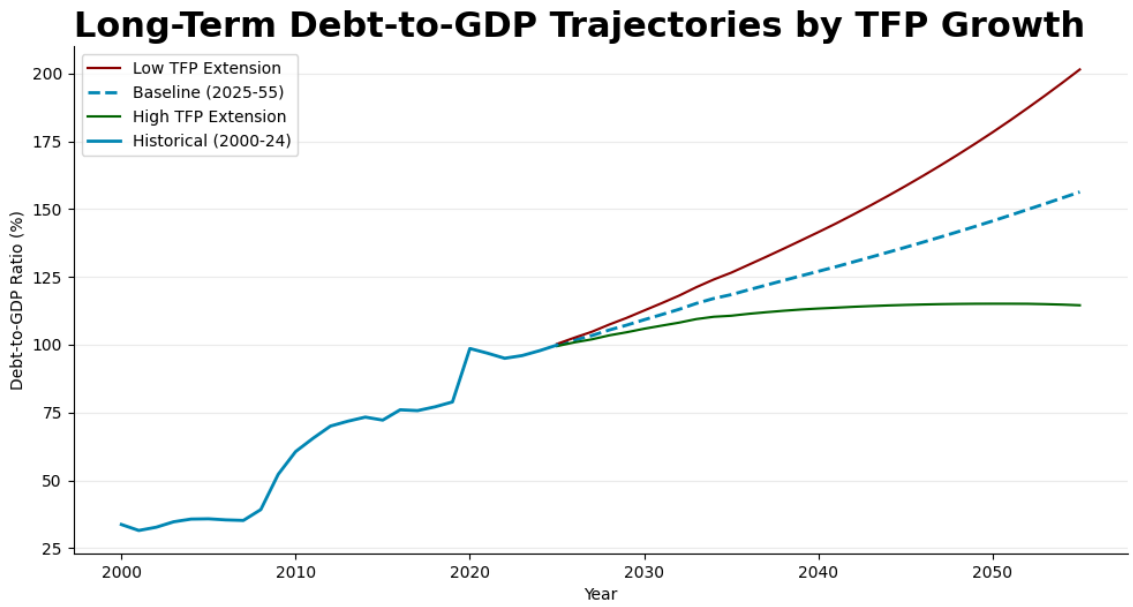
For a broader view of the impact of productivity growth on the debt-to-GDP ratio, we applied CBO's estimates to several illustrative paths for productivity. CBO (2025a) projected that potential total factor productivity growth will average 1.1 percent per year over the next decade. Plausible variation around that central projection matters significantly for the debt-to-GDP ratio, as shown in the first figure below.

Looking beyond the coming decade, CBO (2024a) examined the impact of faster total factor productivity growth over the next thirty years, as shown in the second figure below. Based on CBO's estimates, if productivity increased 0.5 percentage point per year more quickly than expected during that whole period, then inflation-adjusted gross national product (GNP) per person would be 17 percent higher than otherwise after thirty years, interest rates would be 0.5 percentage point higher, and debt held by the public would be 42 percent of GDP smaller.[4]

[4] Those estimates are based on CBO's 30-year projections from 2024; the agency has not released updated estimates corresponding to the agency's 30-year projections from 2025, but the numbers probably have not changed significantly. In the figure, we apply the differences in outcomes projected by CBO (2024a) to the updated 30-year projections in CBO (2025c). In its long-term analyses, CBO often focuses on the impact on



Data sources: Congressional Budget Office, The Budget and Economic Outlook: 2025 to 2035 (January 2025) and CBO rules-of-thumb model.



Data sources: Congressional Budget Office, The Long-Term Budget Outlook: 2025 to 2055 (March 2025) and The Long-Term Budget Outlook Under Alternative Scenarios for the Economy and the Budget (May 2024).

GNP rather than GDP because different scenarios affect international capital flows—and thus GNP relative to GDP—in different ways, and changes in GNP are better reflections of changes in people's incomes.

In sum, significantly higher productivity growth would boost GDP and reduce deficits and debt relative to GDP—partly by trimming deficits and debt, and partly by increasing GDP. If productivity growth was 0.5 percentage point per year faster than CBO expects throughout the next three decades, then the ratio of debt-to-GDP would be stabilized.

Policy Changes, Productivity Growth, and Budget Deficits

In the alternative scenario just discussed, the difference in productivity growth represents an exogenous change in the economy. Suppose, instead, that faster growth in productivity stemmed from policy changes.

Some policy changes that would boost productivity involve changes in federal regulations. Those changes might have little direct budgetary impact. In such cases, analyses of faster exogenous productivity growth would capture the key effects of the regulatory changes on the economy and the budget.

However, other policy changes that would boost productivity involve cuts in federal taxes (such as enhancing investment incentives) or increases in federal spending (such as expanding funding for research and development). Those tax cuts or spending increases would directly *raise* deficits and debt, which would work in the opposite direction from the effects of faster economic growth. Whether, on balance, debt would be higher or lower and the debt-to-GDP ratio would be higher or lower would depend on the specifics of the polices. Policies that have large effects on economic growth per dollar of direct budgetary cost would be more likely to help stabilize the debt-to-GDP ratio.

Estimates of the Economic and Budgetary Effects of Policy Changes

Congress receives estimates of the budgetary impact of legislative proposals from the staff of the Joint Committee on Taxation (JCT), which analyzes proposals to change the federal tax code, and from CBO, which analyzes all other proposals. Estimates from CBO and JCT—often described as "scores"— include the effects of many behavioral responses but generally *not* the effects of changes in productivity, labor supply, or capital investment. The omission of those other responses reflects a longstanding convention in scoring legislative proposals of assuming a fixed path for overall output and income.

An alternative to conventional scoring is so-called dynamic scoring, which refers to estimates that include *all* of the likely behavioral responses to proposals and allow overall output and income to change. Elmendorf, Hubbard, and Williams (2025) examined the advantages and disadvantages of dynamic scoring, described potential criteria for Congress to decide about the appropriate scoring approach, explained how dynamic

scoring might be feasibly undertaken, and provided some illustrative examples. The paper emphasized that the broad economic effects of some policies are being quantified in an expanding body of research and that CBO and JCT have made substantial progress developing models to capture those effects. In some cases, effects on labor, capital, and productivity are minimal within the standard ten-year period for budget estimates but become larger thereafter, and in recent years CBO and JCT have also enhanced their ability to provide estimates for longer time periods—albeit with greater uncertainty than with estimates for the standard ten-year budget window.

On occasion, CBO and JCT generate and publish dynamic estimates. Examples include reports from JCT on the economic effects of four major pieces of tax legislation (JCT 2015b, 2015c, 2017, and 2018b) and reports from CBO on repealing the Affordable Care Act, responding to the pandemic, funding more infrastructure, and expanding Medicaid eligibility (CBO 2015, 2020, 2021b, and 2024d).

For CBO, the key models used in dynamic estimates include a Solow-type growth model, a Keynesian multipliers model, and a small-scale policy model that combines the two preceding models (CBO 2014 and 2021a; Shackleton 2018; Lasky 2022). For JCT, the key models include a macroeconomic equilibrium growth model, an overlapping generations model, and a dynamic stochastic general equilibrium model (JCT 2015a, 2018a, and 2020; Auerbach et al. 2017; Moore and Pecoraro 2020 and 2023).

Dynamic analyses by CBO and JCT depend on empirical evidence generated by economists outside the agencies (as well as on evidence generated within the agencies). CBO (2024b) published a "call for research" on topics where a scarcity of evidence particularly hinders CBO's work, and our case studies in this paper include a number of calls for further research as well.

We explained above that if economic growth is spurred by tax cuts or spending increases, the additional debt arising directly from those policy changes works in the opposite direction from the reduction in debt stemming from faster growth. One can see these opposing forces at work in CBO's analyses.

For example, CBO (2021b) showed that if additional federal infrastructure spending is financed by a cut in other spending that has no direct effect on economic growth, then the boost to output from the additional infrastructure raises federal revenue and reduces federal spending by enough to offset roughly one-third of the initial cost. However, if the additional spending is financed by higher federal borrowing, then the increment to output from the additional infrastructure is more than offset by the reduction in output due to

crowding out of investment, and the future budgetary effects augment the initial cost by about one-fourth.

As another example, CBO (2024c) analyzed how the expiration of provisions of the 2017 tax cut would affect the economic outlook. CBO found that the expiration would slightly reduce the supply of labor (because of the increase in individual income tax rates) and increase private investment (because of the reduction in federal borrowing), and that these two effects would be roughly offsetting in their impact on GDP.

Observations

For policymaking aimed at spurring growth and restraining debt, four general observations seem important.

First, analysts should be realistic about how much additional economic growth could be fostered by policy changes. Understating the likely effects of a policy change could discourage valuable action, and overstating the likely effects could induce action that is not desirable; both sorts of errors could undermine confidence in economic analysis over time. One implication is that analysts should be careful in assessing whether potential policy changes would raise the growth rate of output indefinitely *or* would raise the level of output indefinitely by raising the growth rate of output for a limited period.

For example, consider a back-of-the-envelope assessment by CBO (2013) of the impact of cutting the effective marginal tax rate on labor earnings by 5 percentage points while changing the tax code in other ways that did not affect growth and left revenue unchanged on balance—a significant tax reform. CBO reported that, based on the agency's interpretation of research on labor supply elasticities, labor supply would increase by 2 percent or less, and if the capital stock rose correspondingly, the level of GDP would increase by 2 percent or less. CBO did not specify the timing of those gains—but if they occurred over eight years, they would represent increases in annual growth rates of one-quarter percentage point during those years and no changes in growth rates beyond that. Those step-ups in growth would be considerable, but only half the size of the steps-ups in growth we discussed earlier and less persistent; moreover, the scenario relies on the budgetary loss from lower tax rates being made up through other policy changes.

Second, estimates of the effects of policy changes are inherently uncertain, which can justify experimentation and adaptation but does not justify paralysis. Uncertainty is greater for potential policy changes for which the evidence base is more limited and for which estimators (such as CBO and JCT) have less experience producing estimates. Those difficulties arise in many policy areas where growth-enhancing polices might be

considered, including those we review in this paper. As a result, policymakers might find it useful to try policies in small and reversible ways before enacting large and enduring changes, and they might alter course as new evidence emerges. But choosing not to adopt certain policies is effectively the same as choosing other policies, so no truly neutral setting for policies exists.

Third, tax rules and benefit programs can be changed to adjust the feedback from economic growth to federal revenue and spending. One reason that faster economic growth reduces budget deficits only to a modest degree is that some significant federal benefits are effectively tied to economic growth—for example, under current law, higher wages lead to higher Social Security benefits over time. One could imagine a combination of policy changes that would both increase economic growth and lessen the passthrough of growth to benefits; the results could be a larger reduction in budget deficits than would occur from a commensurate increase in growth under current law *and* an increase in benefits for retirees relative to current law, albeit a smaller one than would occur from a commensurate increase in growth under current law.

Fourth, policies that increase economic growth and restrain federal debt might have other consequences that could concern policymakers. For example, one can imagine policies that would boost growth and hold down debt but also accelerate climate change and environmental degradation, expose the country to greater national security risks, or lessen the well-being of some groups in the population.

In particular, Okun (1975) explained eloquently that policies to make the distribution of goods and services more equal would often reduce the overall amount of goods and services—with the implication that curtailing redistribution might increase total output. For example, CBO (2015) estimated that repealing the Affordable Care Act would increase the level of GDP by three-quarters of a percent in the second half of the subsequent decade (in part by removing the implicit tax on work from the phase-out of some health benefits as income rises) and would cause 24 million people to lose health insurance. Because income inequality has increased during the past several decades, tradeoffs between economic growth and the well-being of people who are helped by government programs may be especially salient today.

Yet, an expanding body of research shows that certain forms of preschool education, access to health care, housing assistance, and other support for lower-income children not only improve their lives as children but also increase their income as adults—a point we return to later. Therefore, such support may both reduce inequality and increase

economic growth, depending on how it is financed.[5] More generally, good policy design can help to mitigate the tradeoff highlighted by Okun.

Increasing Immigration of High-Skilled Workers

In this section and the ones that follow, we address seven areas of economic policy and evaluate whether policy changes in those areas could boost output enough to meaningfully reduce federal deficits and at what budgetary cost. In some areas, the existing empirical evidence is sufficient to form credible quantitative estimates of the economic and budgetary effects of some potential policy changes, and we describe how such estimates can be made. In other areas, existing evidence is more limited, and we discuss how the evidence base might be expanded.

We begin with the possibility of increasing immigration of high-skilled workers. H-1B visas allow U.S. employers to hire foreign workers for so-called "specialty occupations," which require the use of specialized knowledge and a bachelor's degree or higher (or equivalent experience). Currently, H1-B visas are capped at 65,000 per year, with another 20,000 available for certain advanced-degree holders, most of whom are in STEM fields (science, technology, engineering, and mathematics).

Suppose that the United States made a sharp change in H-1B visa policy for one year and admitted an additional 200,000 foreign workers with advanced degrees in STEM fields. What would be the impact on economic growth and the federal budget?

The answer that we propose includes effects on both the number of workers and productivity growth in the economy, along with the implications of those effects for other economic variables and the budget. We recognize that there might be further effects we do not address, such as the economic effects of immigrants' children.

Prato (2025) provided the type of evidence needed to directly assess the impact on productivity of changes in immigration of high-skilled workers. She developed and estimated an endogenous growth model in which inventors boost productivity by generating technological innovations and can migrate between countries. Based on her

[5] As an example, CBO (2024d) estimated that a proposal to expand federal health insurance for children would significantly boost those children's earnings in adulthood and thereby boost future tax revenue, but that the overall budgetary impact would depend crucially on how the expansion was financed: If federal spending that did not constitute an investment was cut, the present value of the additional tax revenue would offset 15 to 86 percent of the initial cost, but if federal borrowing increased instead, the present value of the other budgetary effects would *augment* the initial costs by 34 to 130 percent.

theoretical and empirical analysis, she presented results from a counterfactual scenario in which the number of immigrant inventors is doubled, and she concluded that productivity rises substantially as a result.

Prato's analysis focused on migrant inventors—specifically, migrants who receive patents. If we use other studies to estimate the share of the additional 200,000 immigrants who would receive patents, we can extrapolate Prato's estimate of productivity effects to the hypothetical policy we are analyzing.

We view an estimate developed in that way as a lower bound on the change in productivity, because the approach assumes implicitly that high-skilled immigrants who do not patent have no effect on productivity. That assumption is consistent with the view that valuable innovations result in patents and other innovations do not. However, the classic research on this topic—the so-called Yale survey (Levin et al. 1987) and Carnegie Mellon survey (Cohen et al. 2000), recently updated by Mezzanotti and Simcoe (2023)—points to a different conclusion. That research suggests that a dominant force driving differences in patenting rates across industries is differences in the effectiveness of patents for appropriating returns from innovation. Therefore, many valuable innovations may not be patented simply because they occur in industries where patents are not privately valuable. If we assume that immigrants with advanced STEM degrees who do not receive patents have the same effect on productivity as such immigrants who do receive patents, we have what we view as an upper-bound estimate of the productivity impact of our hypothetical policy.

We present the relevant calculations in the appendix. We estimate that admitting an additional 200,000 foreign workers with advanced degrees in STEM fields would boost annual total factor productivity growth by 0.003 percentage point to 0.053 percentage point after twenty-five years.

Even our upper-bound estimate of the impact of this hypothetical policy is an order of magnitude smaller than the 0.5 percentage point step-up of productivity growth in CBO's alternative long-run scenario described above. Suppose that the true effect would be the average of our lower-bound and upper-bound estimates. Then, scaling CBO's long-term scenario estimates, our hypothetical increase in immigrants with advanced STEM degrees would cause inflation-adjusted GNP to be about 1 percent higher than otherwise and debt held by the public to be about 2 percent of GDP smaller after thirty years.

Our hypothetical policy change is a one-time addition of 200,000 high-skilled workers. Suppose instead that an additional 200,000 foreign workers with advanced degrees in STEM fields were admitted *every year* for a decade. The estimated effects of that policy

would be roughly ten times as large as the effects we just reported but would take an additional decade to fully reach those higher levels.

Admitting more high-skilled foreign workers would not only increase productivity but also change the number of people and workers in the country.[6] Those extra people and workers would have a direct and positive effect on the federal budget balance that is additive to the productivity effect we have been discussing. Some of the immigrants would receive certain federal benefits, but that draw on the budget would be significantly exceeded by the gain in federal tax revenue from their earnings.

Elmendorf and Williams (2024), in collaboration with analysts from the Penn Wharton Budget Model, estimated that the increase in population from allowing more immigration of workers with advanced STEM degrees (leaving aside the effect on productivity) would generate a net reduction in deficits apart from government interest payments that cumulated by the end of the coming decade to roughly $16 billion per 100,000 additional people in the country at that time. Elmendorf and Williams estimated further that the amount of deficit reduction in the subsequent decade would be larger, as lawful permanent residents naturalized and sponsored family members to immigrate; the reduction in deficits in that subsequent decade would cumulate to roughly $25 billion per 100,000 additional people in the country by the end of the decade.

The conclusion that more high-skilled immigration would increase economic activity and the federal budget balance is bolstered by a separate recent study by the Penn Wharton Budget Model (2025). The analysis held constant the total number of immigrants but shifted the composition toward either high-skilled immigrants or high-skilled STEM immigrants. The authors estimated that either policy would have positive effects on GDP and federal revenue and negative effects on federal spending over the next ten years.

In sum, a substantial one-time increase in immigration of high-skilled workers would make a noticeable but small difference in the trajectory of federal debt by boosting economic growth through raising productivity and augmenting the workforce. A substantial ongoing increase in such immigration would make a correspondingly larger difference through those channels. Moreover, we realize that there might be other channels of influence that we do not address.

Relaxing Restrictions on Housing Construction

[6] U.S. employment is currently around 164 million, so an additional 200,000 workers would represent an increase of about 0.1 percent.

Current regulations regarding land use and construction of housing units hinder construction of single-family houses and multi-family dwellings in many parts of the country. The regulations increase the time needed for planning and building, require structures to have additional features, and reduce the scale (and thus efficiency) of construction projects; for example, see Gyourko and Molloy (2015) and D'Amico et al. (2024). In many cases, regulations completely ban building beyond a certain, often low, density. As a result, house prices and rents are higher in many metropolitan areas, housing costs impose a greater burden on many families, more people have no housing at all, and gains from agglomeration are smaller because of lower migration to areas where human capital spillovers are favorable.

Relaxing land and housing regulations could boost economic growth by lowering the cost of housing construction—perhaps with disadvantages for other aspects of society. Housing construction would increase, and the increased stock of housing would generate greater output of housing services. In addition, prices and rents would decrease relative to what they would be without policy changes. That improvement in housing affordability would enhance mobility and thereby the allocation of workers across metropolitan areas, which would raise average productivity; for example, see Hsieh and Moretti (2019) and Duranton and Puga (2023). Even workers who stay in the same metropolitan areas might move in order to spend less time commuting and perhaps more time working, and they might end up with better job matches; those changes would also raise output. Moreover, the improvement in affordability also could lead to higher fertility (and perhaps immigration), which would increase the labor force; for example, see Fazio et al. (2024).

Potential gains in output and income from relaxing land and housing restrictions are large. For example, Duranton and Puga estimated that slackening regulations in the seven metropolitan areas with the largest wedges between housing prices and construction costs during the 1980-2010 period—thereby fostering more flexible movement of people across the country to the most productive areas—would have increased GDP in 2010 by nearly 8 percent.

Restrictions on housing construction arise almost entirely from the policies of state and local governments, but the federal government could create incentives for those governments to adjust their policies. For example, Armlovich et al. (2025) proposed that eligibility for the Low-Income Housing Tax Credit in big cities be restricted to cities that have certain pro-housing regulations. As other examples, federal transportation funding could be tied to zoning changes, or the federal government could create a competitive grant program for zoning reform analogous to the "Race to the Top" program for education reform 15 years ago.

Although the total scope for potential impacts on GDP is substantial, the existing research does not allow us to offer an estimate of the economic and budgetary effects of any specific changes in federal policy in this area. Further research to quantify the relationships between housing policy, housing construction, and economic growth could yield large dividends in policymaking. Moreover, some of the potential policy changes, such as tying existing funding to changes in state policies, do not require additional federal spending, which means that the positive budgetary effects of stronger growth would not be offset by the drag of higher debt.

Investments in Safety-Net Programs

A growing research literature shows that at least some of the government programs that provide benefits to lower-income families help children and adults in those families not only by raising their standard of living while receiving benefits but also by increasing their subsequent earnings; for example, see Aizer et al. 2022, Bailey et al. 2023, Brown et al. 2020, Hoynes et al. 2016, and Miller and Wherry 2019. If earnings roughly reflect marginal products of labor, those findings imply that at least some safety-net programs increase the future output produced by family members who are receiving benefits currently.

Whether the programs in question raise *total* future output is more complicated. If the benefits for a program are funded in a way that has no effect on future output—for example, by reducing federal spending on other programs that do not have long-term economic effects—then the increase in output of the affected family members presumably represents an increase in total output. However, if the benefits for the program are funded in a way that affects future output—for example, by additional federal borrowing that crowds out some private investment—then the increase in output of the affected family members needs to be combined with the effect on output of the financing approach to determine the total effect on output.

The effect of these safety-net programs on the budget is complicated as well, depending on both the effect on total output and the effect on deficits and debt. Suppose that a program raises total future output, in which case it raises future tax revenue (and probably reduces future spending on safety-net programs). If the program is funded by reducing spending on other programs that do not have long-term budgetary effects, then deficits and debt will be lower. However, if the program is funded in by increasing federal borrowing, then deficits and debt might be lower or higher, depending on the relative sizes of the various effects.

Hendren and Sprung-Keyser (2020) used the emerging evidence on safety-net programs to calculate what they called the "marginal value of public funds" (MVPF) for more than 130 previous policy changes. The MVPF equals recipients' willingness to pay for the benefits of a program relative to the long-term budgetary cost of the program, and Hendren and Sprung-Keyser argued that this metric should be used to compare different programs' impact on social welfare.

Hendren and Sprung-Keyser found that spending for healthcare and education for children in lower-income families often has had powerful positive effects on those children's future earnings and that those higher earnings have had positive effects on the federal budget. For example, they estimated that $1 spent on the four major expansions of Medicaid for children generated increases in subsequent earnings of those children that improved the federal budget balance by an average of $1.78. Similarly, they estimated that spending for early childhood education programs generally has had favorable budgetary returns over time. Not surprisingly, they found that spending for adults has smaller effects on future earnings. Thus, Hendren and Sprung-Keyser concluded that the MVPF for programs focused on children are typically larger than the MVPF for programs focused on adults.

Hendren and Sprung-Keyser analyzed the direct budgetary costs and gains of safety-net programs and did not analyze the general-equilibrium impacts, such as the effects of different financing approaches on crowding out of private investment and on interest rates. Therefore, their estimates do not allow us to assess the overall budgetary consequences of safety-net programs. We want to emphasize, though, that additional spending for safety-net programs might be sensible from an economic perspective even if such spending increases federal debt on balance.

In applying this line of research to policy proposals, at least three lessons are important. First, the positive budgetary effects of safety-net benefits often arise beyond the traditional 10-year budget window, so the full effects of proposals may be apparent only in long-term estimates. Second, government programs might reasonably focus on benefits with the highest impact, so expansions of programs might well have smaller effects on future output and income per dollar of current spending than do the programs as they exist now. Third, the specifics of policy proposals can matter greatly. For example, CBO (2024d) estimated that a proposal from the Biden administration to expand Medicaid coverage for children would have less positive budgetary feedback than a similar but not identical proposal analyzed earlier by CBO analysts (Ash et al. 2023) because of a difference in the average income of the families affected. Therefore, estimates of policy proposals might be improved by measuring heterogeneity in the previous effects of safety-net programs.

Improving Electricity Transmission

Many analysts with expertise on the energy sector think that an improved electrical grid—and especially improved long-distance transmission of electricity—could lead to substantial reductions in the cost of energy and, as a result, substantial increases in output. The potential gains are large in part because energy expenditures are large, equal to almost 7 percent of GDP in 2022 according to the U.S. Energy Information Administration (2024). The potential gains are large also because renewable energy is often inexpensive to produce but generally needs to be moved long distances—since it is mostly produced far from where it is consumed, and since it is intermittent (depending on when the sun shines and the wind blows) and so access to sources from a wide geographic area helps to smooth out supply.

The U.S. Department of Energy (2024) estimated that $1 spent on electricity transmission lines that enhanced access to renewable energy sources would produce benefits with a net present value between $1.60 and $1.80. The Department also estimated that if the country achieved a 90-percent reduction in greenhouse gas emissions from 2005 levels by 2035, the net present value through 2050 of improving electricity transmission would be roughly $380 billion.

Yet, the United States is currently building very little long-distance transmission capacity.

A combination of three policy changes taken together could lead to significantly more transmission; see Macey and Mays (2024) and Liscow (2025). One change would be for the Federal Energy Regulatory Commission (FERC) to preempt local authorities so that siting transmission lines would not be subject to multiple veto points; FERC already plays this role for siting natural gas lines. Another change would be to alter the incentives of utilities, because utilities that are local monopolists currently profit from selling higher-priced electricity and do not want lower-priced competition; Macey (2025) discussed various proposals to change utilities' incentives. And the third change would be to ease NEPA's rules regarding permitting of infrastructure, which we discuss later.

Making only one or two of those policy changes probably would have much less effect than making all three together. For example, empowering FERC to preempt local authorities without easing NEPA's rules might not make the building process that much faster or simpler, and addressing both of those hindrances to building without altering utilities' incentives might still not lead to much additional building.

Therefore, a key lesson for policymakers and analysts is the importance of understanding the interactions between constraints on behavior. Policymakers expect CBO to produce

reliable estimates of the effects of legislative proposals that relax certain constraints. But to do that, the agency needs evidence about the extent to which specific constraints or combinations of constraints are binding—and researchers need to generate that evidence.

Increasing Federal Support for Research and Development

Policymakers recognize that innovation is a crucial factor driving growth in productivity, output, and incomes. However, federal spending for research and development (R&D) has trended down relative to GDP over the past half-century, even as private funding for R&D has trended up. Therefore, policymakers are interested in understanding the effectiveness in spurring innovation of direct government spending for R&D and of tax incentives for R&D.

Gullo et al. (2025) recently analyzed the economic and budgetary effects of investments in R&D. Specifically, they showed how empirical evidence regarding the impact of R&D on productivity could be used in the framework developed by CBO (2021b) for predicting the economic and budgetary effects of federal investment in physical infrastructure.

In CBO's framework, the key factors needed to produce useful estimates are the following: how additional funding from the federal government leads to changes in behavior by other actors, including potentially both state and local governments and private firms; how quickly federal funding leads to outlays; how quickly outlays increase productivity; how much outlays increase productivity; and whether outlays are financed through debt or other means.

Gullo et al. highlighted several findings from the research literature that are relevant to those factors: First, federally funded R&D appears to have economic returns that are considerably higher than the returns to federal investment in infrastructure. Second, federally funded R&D appears to have economic returns that are at least as large as the returns to privately funded R&D. Third, federally funded R&D appears to generate economic returns within the 10-year window conventionally used in budget estimates as well as over the longer run. And fourth, federally funded R&D appears not to crowd out privately funded R&D but instead to increase it slightly.

The research evidence summarized by Gullo et al. generally assesses average historical returns based on past allocations of funding for research and development. If the evolution of science and technology has increased or decreased the return to further R&D, then those historical returns will be biased signals of the value of future R&D funding. We are not aware of clear evidence on this point. Moreover, if the allocation process has become notably better or worse at identifying R&D activities of high value, then, again, the returns

on past funding will be biased signals of the value of future R&D funding. We are not aware of clear evidence on this point either, but we expect that there would be considerable value in refining the mechanisms used for allocating such funding so that projects with higher returns receive more support.

Gullo et al. also discussed the broad value of CBO's modeling framework. Although implemented initially by CBO just for investment in infrastructure, the approach is flexible and modular, so it can be applied to changes in any federal investment for which there is a reasonable basis for assessing the five key factors just noted. We hope that other researchers will use that modeling framework to analyze the economic and budgetary impact of other types of federal investment.

Putting the pieces together, Gullo et al. showed how the empirical evidence could be used to improve the information provided to policymakers through at least three channels: spending estimates from CBO for legislative proposals regarding R&D funded through federal spending; revenue estimates from JCT for legislative proposals regarding R&D-related tax provisions; and modeling of R&D in budgetary and economic projections under current law that are generated by CBO and other federal agencies.

What is not clear from Gullo et al. is whether the return to federal investment in R&D is high enough that additional investment might "pay for itself" in budgetary terms, meaning that the incremental economic growth would generate enough tax revenue to completely cover the cost of the investment. If additional R&D investment paid for itself in this budgetary sense, then increasing R&D even without any offsetting changes in budget policy would both raise output and lower the trajectory of debt.[7] Clancy (2025) addressed this issue, concluding that government support for R&D is "possibly" self-financing, with different empirical estimates implying subsequent tax revenue that ranges from a partial offset of the initial budgetary cost of the additional investment to more than a full offset of that cost. Further research on this topic would be valuable. Lastly, we emphasize that additional federal investment in R&D might be sensible from a health or perspective even if the investment does not cover its cost in budgetary terms.

Using Tax Policy to Increase Business Investment

[7] As we noted earlier, CBO found that federal investment in *infrastructure* financed by borrowing ultimately hinders economic growth given the crowding out of other investment and the relative returns on federal infrastructure and private investment, so such investment does not "pay for itself" in budgetary terms.

Tax policy regarding business investment has long been a significant area of interest for policymakers seeking to boost economic growth. Policymakers have benefited greatly from research findings on the effects of changes in tax law.

Hassett and Hubbard (2002) used a dynamic neoclassical model to evaluate the effects on business fixed investment and the capital stock of corporate tax rates, investment tax incentives, and personal tax rates. Lower tax rates on profits and higher investment incentives increase the steady-state capital stock, output, productivity, and wages. In models with adjustment costs, cuts in profits taxes and increases in investment incentives generate higher growth in output, productivity, and wages as the economy moves to a larger steady-state capital stock.

Such analysis underpinned the design of the Tax Cuts and Jobs Act of 2017 (TCJA), which reduced tax rates on corporate profits and boosted investment incentives by allowing immediate expensing of investment (in contrast to depreciating such investment over time). In 2025, policymakers are considering further changes to these and other aspects of TCJA.

Estimating the effects of tax policy on business investment is complicated by the facts that many other factors also affect investment and that tax policy is partially endogenous to economic conditions. Therefore, Cummins et al. (1994, 1996) and some subsequent researchers have studied the aftermath of major tax reforms, which have created (mostly) exogenous cross-sectional variation in the user cost of capital and tax-adjusted Tobin's *q*. These studies have found substantial effects of tax policy on business investment.

For example, Kennedy et al. (2024) analyzed business investment following TCJA by exploiting differences in the changes in tax rates across similar-size firms with different organizational forms. Specifically, TCJA cut the top statutory tax rate on so-called C corporations (which adhere to the traditional corporate form) from 35 to 21 percent, and it cut the top statutory tax rate on so-called S corporations (which "pass through" their profits and losses directly to shareholders) from 39.6 to 37 percent (and also gave some S corporations a new deduction that reduced their top rate further to 29.6 percent). Kennedy et al. estimated large effects of those tax changes on investment, especially in capital-intensive industries. Chodorow-Reich et al. (2024) studied investment responses to TCJA using a different approach and estimated similar responses.

Other researchers have developed an alternative methodology for estimating the effects of tax policy on business investment: using narrative evidence to classify exogenous changes in policy and relating those changes to aggregate time-series data. Romer and Romer (2009, 2010) pioneered this approach, and Mertens and Ravn (2013) built on it. Mertens

and Ravn estimated that cutting the average corporate profits tax rate by 1 percentage point increases real GDP by 0.6 percent after one year.

JCT and CBO draw on this evidence base to produce estimates of the economic and budgetary effects of changes in tax policy—JCT in macroeconomic analyses of pending and enacted tax legislation, and CBO in current-law economic and budget projections.

Elmendorf et al. (2025) highlighted the magnitude of the economic effects of major tax changes by comparing JCT's conventional and dynamic estimates for four significant tax cuts (JCT, 2015b, 2015c, 2017, and 2018b). For TCJA, JCT estimated that federal revenue would be reduced over the following decade by $1.46 trillion assuming a fixed path for GDP and by $1.07 trillion including the expected boost to GDP; therefore, the expected effects on economic growth lowered the projected budgetary cost by 26 percent. For the other three bills, JCT's conventional and dynamic estimates differed by less, with the expected effects on economic growth lowering the projected budgetary costs by 5 to 14 percent.

Of particular note are JCT's estimates for the Protecting Family and Small Business Tax Cuts Act of 2018 (JCT 2018b), which would have made permanent many of the changes to the individual tax code enacted on a temporary basis in TCJA. JCT estimated that the increase in economic growth from that bill would have generated additional revenue equal to 14 percent of the conventionally estimated revenue loss. That figure is considerably smaller than the corresponding offset for TCJA as a whole, which shows that the individual tax provisions of TCJA were expected to increase growth much less per dollar of tax cut than the business tax provisions.

One key lesson of these analyses is that tax cuts that strengthen incentives for business investment can have significant positive effects on output. Another key lesson is that the increases in tax revenue owing to higher output will generally be much smaller than the decreases in revenue arising directly from the tax cuts—that is, tax cuts that spur economic growth generally do not come close to "paying for themselves" in budgetary terms. However, certain targeted tax cuts might raise economic growth enough that the incremental revenue would exceed the direct revenue loss. For example, our earlier discussion of the effects of R&D on productivity raises the possibility that a tax subsidy for R&D might have a positive net effect on the budget. And we emphasize that tax cuts might be sensible from an economic perspective even if they do not cover their cost in budgetary terms.

Reforming Permitting Restrictions

In recent years, policymakers have become increasingly interested in reforming the process through which building projects are licensed, or "permitted," before construction begins. One important piece of permitting is the National Environmental Policy Act (NEPA), which was enacted in 1970 and requires environmental reviews of many major infrastructure projects. NEPA covers federally funded and federally subsidized projects, as well as some privately funded projects (such as projects that require passage across federal lands), and it is intended to force consideration of the ways that proposed projects would affect both nature and people; see Liscow (2025) for more information. Building is also constrained by other laws, such as the National Historic Preservation Act (NHPA) and the Clean Water Act's wetlands protections.

Easing the restrictions imposed by permitting laws has the potential to boost economic growth and reduce budget deficits, perhaps with negative consequences for community voice, endangered species, and other non-budgetary aspects of society. In this section we present a modeling framework for quantifying the economic and budgetary effects of permitting reform. Unfortunately, credible empirical evidence does not yet exist for some crucial parameters. In an attempt to illustrate concretely what type of evidence is needed, we briefly describe our ongoing work with Heidi Williams that is attempting to generate such evidence.

A Narrow Example

Consider a recent CBO analysis of one specific policy change. The National Defense Authorization Act for Fiscal Year 2024 excluded certain semiconductor projects subsidized through the CHIPS and Science Act from both NEPA and NHPA. This provision was narrow in applying only to certain types of construction projects and in providing exclusions only from those two sets of requirements and not from other permitting requirements; still, the provision illustrates issues that would arise with other types of permitting changes as well.

In its budgetary estimate for that legislation, CBO (2023) explained: "Based on information from the Department of Commerce and research about the extent to which NEPA and NHPA affect the timeline for implementing federally funded projects, CBO estimates that enacting [this provision] would speed up certain semiconductor projects." Faster construction would cause federal subsidies for those projects to be paid out more rapidly. The result is that subsidies previously expected to be paid within the ten-year budget window would be paid earlier in that window, and more total subsidies would be paid within the window.

CBO's estimate for the provision followed the convention of holding total output fixed. If, instead, CBO had produced a dynamic estimate that incorporated changes in labor,

capital, and productivity, then additional effects of the policy change would have been important. In particular, the construction projects affected by this permitting exemption were not solely federally funded. Rather, the projects were federally *subsidized*, so a shift in the timing of federal subsidies implicitly traces out a shift in the timing of private infrastructure spending.

Specifically, a public letter from multiple members of Congress (Kelly et al. 2023) reported that the Commerce Department expected federal subsidies to equal 5 to 15 percent of total costs for these construction projects. Combining that figure with CBO's estimate that the provision would increase federal subsidies for these projects by $34 million over the ten-year budget window implies a change in private investment during that decade of $227 to $680 million. A dynamic estimate for the provision would include the follow-on economic effects of the additional private investment and the budgetary feedback arising from those economic effects. That feedback would lessen—and possibly reverse—the increase in deficits that CBO estimated would result from the permitting provision.

Broader Changes

Broader changes in permitting requirements could affect a range of private and public investments. NEPA applies to "major" federal actions of several types: actions that would occur on federal lands; actions requiring passage across federal lands; actions funded entirely or in part by the federal government through any discretionary programs creating a "federal nexus"; and actions that affect the air or water quality regulated by federal law. Thus, NEPA can apply to building semiconductor fabrication facilities, to oil and gas drilling, to clean energy investments, to new transportation infrastructure, and even to controlled burns by the U.S. Forest Service (Brueghel 2025).

Making useful predictions about the economic and budgetary effects of potential changes to NEPA requires information about the distribution of investments subject to NEPA *and* estimated elasticities of different sorts of investments with respect to NEPA changes. Credible evidence on those topics is lacking today, and in ongoing work with Heidi Williams, we are aiming to generate some.

To determine the distribution of investments affected by NEPA, we are mapping NEPA's coverage to industry codes in the North American Industry Classification System (NAICS). For example, the Bureau of Land Management has one of the highest levels of NEPA activity among federal agencies, and presumably that occurs because many mining and oil and gas extraction projects are affected by NEPA. Generalizing from this example, we are estimating NEPA coverage by industry using the online application RegData, which

produces text-based searches of the Code of Federal Regulations meant to indicate whether certain industries are affected by specific sections of regulatory text.

Regarding the elasticities of different sorts of investments with respect to NEPA changes, we return to the point we made above about the specific policy change for semiconductor projects: If a change in permitting rules shortens the time needed to build, that difference would accelerate infrastructure projects that are already planned *and* would increase the number and scale of infrastructure projects by raising expected returns to investment. These types of responses have been quantified in other contexts; for example, see Budish et al. (2015) regarding drug development and Gabriel and Kung (2024) regarding housing supply. Yet, we are not aware of any reliable estimates of their magnitude for changes in permitting rules. We are working to estimate investment elasticities using variation over time in permitting policy at the state level, such as the enactments of the California Environmental Quality Act and the Montana Environmental Policy Act.

Conclusion

As policymakers consider ways to increase economic growth and to put federal debt on a sustainable path, policies that could contribute to both goals simultaneously might be high on the agenda.

According to CBO's projections, raising average annual productivity growth from 1.1 percent to 1.6 percent on a sustained basis would stabilize debt relative to GDP. We have found no evidence that such a large and sustained increase in productivity could be generated by plausible changes in government policy that would not themselves increase the deficit significantly. We conclude, therefore, that growth-enhancing policies almost certainly cannot stabilize federal debt on their own.

However, evidence shows that some growth-enhancing policies can reduce the explicit tax hikes, spending cuts, or both that are needed to stabilize debt. A pro-growth agenda could involve changes in multiple areas of public policy, and we considered potential changes in seven areas—immigration, housing, the safety net, electricity transmission, R&D, taxes on business investment, and permitting. Certain policy changes in those areas would boost economic growth, and some of those changes would do so at a low enough direct budgetary cost that they would lower the trajectory of debt relative to GDP.

Moreover, we did not cover every policy area where substantial improvements in economic performance are possible. For example, health care in the United States significantly

underperforms health care in other countries when comparing health outcomes and spending, as discussed by Wagner and Cox (2024) among many others.

For all of the policy areas we examined, the evidence needed to quantify the likely effects of potential policy changes is less abundant than one would like or is missing altogether—and policymakers depend on the quantification of likely effects to make informed choices. Quantification is especially important for potential policy changes with direct budgetary effects because of the attention given to official estimates from CBO and JCT when decisions are made.

We hope that this paper encourages researchers to fill some of the gaps in evidence regarding growth-enhancing policies. Some of the desirable research involves estimates of basic economic relationships, while other desirable research would generate "connective tissue" between estimates of basic economic relationships and the macroeconomic and budgetary models used by CBO and JCT.

One specific research direction that seems especially fruitful to us is estimating the effects of potential policy changes on total factor productivity. Such estimates are important because productivity growth is central to output in the long run and central to the macroeconomic modeling done by CBO and JCT. Yet, evidence linking specific policies to productivity growth is limited. For example, many studies have measured how R&D and immigration of high-skilled workers affect patenting, but very few studies have mapped changes in patenting to changes in productivity.

Another valuable research direction is estimating the heterogeneity of the effects of safety-net programs. As we discussed earlier, expanding programs to provide additional benefits or serve additional populations might yield different returns than the existing programs. Understanding those differences—beyond the traditional 10-year budget window as well as within it—is important for making policy choices.

We close with three final thoughts on policies to reduce budget deficits by increasing economic growth.

First, regulatory changes tend to offer greater promise in achieving these goals than tax or spending changes. The reason is straightforward: Cuts in taxes or increases in spending directly widen budget deficits, so those changes need to have very potent impacts on growth if they are to improve budget outcomes enough to offset the direct widening of deficits. Such potency is not impossible—and could be the case for some safety-net programs, for example—but it is not common.

Second, regulatory changes that could boost growth include some changes that would ease regulation and some changes that would strengthen regulation. Our examples of reforming permitting for infrastructure and relaxing restrictions on housing are deregulatory, whereas improving electricity transmission could include (among other actions) federal government intervention to alter the incentives of local utilities.

Third, the relationship between increased economic growth and budget deficits can be altered. One can imagine a set of policy changes that increased economic growth and did not pass as much of that growth through to Social Security benefits as would occur under the current benefit formula. Such changes could reduce deficits by more than occurs in CBO's simulations under current law while still providing gains for retirees. Although the politics of this approach could be challenging, especially because the impacts of policies on growth are not observed directly, that combination might generate a larger constituency for pro-growth reforms.

In sum, the policy changes we have examined probably would, as a group, boost economic growth significantly. But the changes would involve meaningful tradeoffs that citizens and policymakers would need to consider. Moreover, the magnitudes of the effects on growth, and thus of the effects on the federal budget, are quite uncertain for many possible changes because of limitations in the empirical evidence to date. We hope that economists will help to address that technocratic challenge.

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Appendix: Estimating the Effects of Increasing Immigration of High-Skilled Workers

Akcigit and Goldschlag (2022) estimated that the United States has 4.9 million inventors in total and 30 percent of them are foreign-born; Hunt (2011) estimated that about 1 percent of the native population (now equal to roughly 340 million) holds patents. Therefore, both sources imply that there are roughly 3.4 million native inventors. Prato (2025) estimated that the annual flow of immigrant inventors is 0.0097 times the stock of native inventors, which implies annual immigration of about 33,000 inventors.

For our lower-bound estimate, we follow Prato in focusing on migrant inventors. Hunt tabulated that about 3 percent of high-skilled visa holders have received patents, which implies that 200,000 additional high-skilled immigrants would include roughly 6,000 additional patent recipients. However, Hunt’s tabulations were not STEM-specific, and advanced-degree holders in STEM fields are more likely to have received patents than high-skilled immigrants generally. In the National Survey of College Graduates, which is the source of Hunt’s data, 7.2 percent of immigrant post-doctoral fellows (of whom 94 percent are in STEM) have received patents. Applying that rate to 200,000 additional workers with advanced degrees in STEM fields would yield 14,400 additional patent holders.

Prato presented a counterfactual in which the annual number of immigrant inventors was doubled, which would be an increase of 33,000 given our estimate of current immigrant inventors, and annual total factor productivity growth ends up 0.048 percentage point higher after twenty-five years, with most of the increase occurring in the standard ten-year budget window. Over that window, her counterfactual would produce 1,815,000 additional person-years of immigrant inventors (10*33,000+9*33,000+…+1*33,000), and our hypothetical policy would add 144,000 person-years of immigrant inventors (10*14,400). Scaling her estimated effect on productivity by the relative number of person-years under our hypothetical policy implies that a one-time increase of 200,000 workers with advanced STEM degrees would boost annual total factor productivity growth by 0.003 percentage point (0.048*144,000/1,815,000) after twenty-five years.

For our upper-bound estimate, we assume that productivity is boosted as much by high-skilled STEM workers who do not receive patents as by high-skilled STEM workers who do receive patents. Under this assumption, the 14,400 figure in the lower-bound calculation is replaced by 200,000. Then, our hypothetical policy would boost annual total factor productivity growth by 0.053 percentage point (0.048*2,000,000/1,815,000) after twenty-five years.

Our calculations based on Prato's estimates can be compared to calculations that can be made using estimates by Peri et al. (2015), who leveraged time-series variation in H-1B visa availability to assess the effect of foreign-born STEM workers on wage growth at the city level. Their simulations imply that growth in the number of such workers equal to 0.04 percent of total employment raised annual productivity growth by 0.47 percentage point per year (see row 1, column 1 of their table 8). With employment now equal to about 164 million, our hypothetical policy would raise the foreign-born STEM share of employment by 0.12 percent (200,000/164,000,000). The Peri et al. simulations would then imply an increase in annual productivity growth of 1.41 percentage points (0.47*0.12/0.04), which is dramatically larger than our calculations using Prato's estimates.

Another useful point of comparison are estimates by Crane et al. (2021), who assessed the change in GDP generated by the contributions of foreign-born STEM workers to total factor productivity. Their estimates imply effects of our hypothetical policy that are in the same ballpark as the effects we based on Prato's estimates.