APPENDIX

B

The Effects of the 2017 Tax Act on CBO's Economic and Budget Projections

Overview

In December 2017, Public Law 115-97, referred to here as the 2017 tax act, was enacted. The act made important changes to the tax system that apply to both businesses and individuals. Consequently, the Congressional Budget Office had to estimate its effects when preparing its new baseline projections, which incorporate the assumption that current laws affecting taxes and spending generally do not change. In those projections for the 2018–2028 period, the act's changes boost economic output and increase budget deficits, on net.

What Are the Act's Major Provisions?

The 2017 tax act changes corporate and individual tax rates and includes various provisions that affect how businesses and individuals calculate their taxable income. Among other things, the act lowers the top corporate income tax rate to 21 percent. It changes the way that the foreign income of U.S. corporations is taxed, and it reduces some incentives for corporations to shift profits outside the United States. For the next eight years, the act lowers individual income tax rates and broadens the total amount of income subject to that tax. Also for the next eight years, it increases the tax exemptions for property transferred at death and for certain gifts. Starting next year, it eliminates the penalty for not having health insurance—a penalty imposed under a provision of the Affordable Care Act generally called the individual mandate. And it changes the measure of inflation that is used to adjust certain tax parameters.

What Are the Act's Projected Economic Effects?

In CBO's assessment, the 2017 tax act changes businesses' and individuals' incentives in various ways. On net, those changes are expected to encourage saving, investment, and work.

CBO projects that the act's effects on the U.S. economy over the 2018–2028 period will include higher levels of investment, employment, and gross domestic product (GDP). For example, in CBO's projections, the act boosts average annual real GDP by 0.7 percent over the 2018–2028 period. Analysis of the act's economic effects is complicated by its mix of permanent and temporary provisions; of particular note is that it lowers the corporate income tax rate permanently but individual income tax rates only through 2025. As a result, the projected economic effects vary over the 11-year period; the largest effects on the economy occur during the period's middle years.

CBO's projections of the act's economic effects are based partly on projections of the act's effects on potential GDP—the economy's maximum sustainable level of production. In the agency's projections, the act increases the level of potential GDP by boosting investment and labor. By lowering the corporate income tax rate, the act gives businesses incentives to increase investment, and by lowering individual income tax rates through 2025, it gives people incentives to increase their participation in the labor force and their hours worked, expanding the potential labor supply and employment. Other provisions of the tax act, including a limit on deductions for state and local taxes and for mortgage interest, will push down residential investment, but the overall effect on investment is positive. One result of the act will dampen those positive effects on potential output: It will increase federal deficits and therefore increase federal borrowing and interest rates, crowding out some private investment.

In CBO's projections, the act initially boosts real GDP (that is, GDP adjusted to remove the effects of inflation) in relation to real potential GDP, influencing other economic variables, such as inflation and interest rates. GDP is pushed up in relation to potential GDP because the act increases overall demand for goods and services (by raising households' and businesses' after-tax income). The heightened economic activity subsequently generates more demand for labor and consequently higher wages. In response, the labor force participation rate (which is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and either

working or seeking work) rises, as do the number of hours worked, and the unemployment rate goes down. The largest positive effects occur during the 2018–2023 period. After income tax rates rise as scheduled at the close of 2025, the growth of overall demand is dampened in relation to the growth of potential output.

Among the effects of the initially stronger output growth are slightly higher inflation and an increase in the exchange value of the dollar. Furthermore, CBO expects the Federal Reserve to respond to the stronger labor market and increases in inflationary pressure by pushing short-term interest rates higher over the next few years. Long-term interest rates are also expected to rise.

Just as the tax act is projected to boost real GDP, it is expected to increase income for labor and business over the 2018–2028 period. The act will also affect the relationship between GDP and gross national product (GNP). GNP differs from GDP by including the income that U.S. residents earn from abroad and excluding the income that nonresidents earn from domestic sources; it is therefore a better measure of the income available to U.S. residents. Because the act reduces the amount of net foreign income earned by U.S. residents in CBO's projections, it increases GNP less than it increases GDP.

What Are the Act's Projected Budgetary Effects?
To construct its baseline budget projections, CBO incorporated the effects of the tax act, taking into account economic feedback—that is, the ways in which the act is likely to affect the economy and in turn affect the budget. Doing so raised the 11-year projection of the cumulative primary deficit (that is, the deficit excluding the costs of servicing the debt) by $1.3 trillion and raised projected debt-service costs by roughly $600 billion. The act therefore increases the total projected deficit over the 2018–2028 period by about $1.9 trillion.

Before taking economic feedback into account, CBO estimated that the tax act would increase the primary deficit by $1.8 trillion and debt-service costs by roughly $450 billion. The feedback is estimated to lower the cumulative primary deficit by about $550 billion, mostly because the act is projected to increase taxable income and thus push tax revenues up. And that feedback raises projected debt-service costs, because even though the reduction in primary deficits means that less borrowing is necessary, the act is expected to result in higher interest rates on debt, which are projected to more than offset the effects on debt-service costs of the smaller debt. On net, economic feedback from the act raises debt-service costs in CBO's projections by about $100 billion.

What Uncertainty Surrounds CBO's Estimates?
CBO's estimates of the economic and budgetary effects of the 2017 tax act are subject to a good deal of uncertainty. The agency is uncertain about various issues—for example, the way the act will be implemented by the Treasury; how households and businesses will rearrange their finances in the face of the act; and how households, businesses, and foreign investors will respond to changes in incentives to work, save, and invest in the United States. That uncertainty implies that the actual outcomes may differ substantially from the projected ones.

The Major Provisions of the Act

The 2017 tax act makes important changes to the tax system that apply to both businesses and individuals. They include changes to corporate and individual tax rates and a variety of provisions that affect how businesses and individuals calculate their taxable income. The changes have important effects on incentives to save, invest, and work.

Together, CBO estimates, the act's provisions reduce, on net, the user cost of capital, which is the gross pretax return on investment that provides the required return to investors after covering taxes and depreciation. That required return can be thought of as the return that investors would have received if they had used their funds to make another, equally risky investment. Therefore, all things being equal, as the user cost of capital falls, investment rises, and vice versa. In addition, the smaller user cost of capital implies lower effective marginal tax rates on capital income.[1] By CBO's

1. The effective marginal tax rate on capital income is the share of the return on an additional investment made in a particular year that will be paid in taxes over the life of that investment. Unlike statutory tax rates, effective marginal tax rates account for the tax treatment of depreciation and various other features of the tax code. For descriptions of CBO's method of estimating the effective marginal tax rate on capital income, see Congressional Budget Office, *Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options* (December 2014), Appendix A, www.cbo.gov/publication/49817, and *Computing Effective Tax Rates on Capital Income* (December 2006), www.cbo.gov/publication/18259. For a description of the relationship between the effective marginal tax rate and the user cost of capital, see page 30 of the December 2014 report, in which the user cost of capital is found by summing the real before-tax rate of return required to cover certain costs (ρ) and the rate of depreciation (δ).

Table B-1.

Projections of Effective Marginal Federal Tax Rates

Percent

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Labor Income					
Rate Under Prior Law	29.4	29.5	29.7	29.8	30.0	30.1	30.2	30.4	30.5	30.6	30.7
Rate Under the 2017 Tax Act	27.2	27.4	27.6	27.7	27.9	28.1	28.2	28.5	30.6	30.7	30.8
Difference (Percentage points)	**-2.2**	**-2.2**	**-2.2**	**-2.1**	**-2.1**	**-2.0**	**-1.9**	**-1.9**	*	**0.1**	**0.1**
						Capital Income					
Rate Under Prior Law	16.5	16.8	17.9	17.9	17.9	17.9	17.9	17.9	17.9	18.0	18.0
Rate Under the 2017 Tax Act	14.7	14.7	14.6	14.5	15.4	15.7	16.1	16.5	16.0	16.5	16.5
Difference (Percentage points)	**-1.8**	**-2.1**	**-3.3**	**-3.4**	**-2.5**	**-2.2**	**-1.9**	**-1.4**	**-1.9**	**-1.5**	**-1.5**

Source: Congressional Budget Office.

The effective marginal tax rate on labor income is the share of an additional dollar of such income that is unavailable to a worker because it is paid in federal individual income taxes and payroll taxes or offset by reductions in benefits from government programs, averaged among workers with weights proportional to their labor income.

The effective marginal tax rate on capital income is the share of the return on an additional investment made in a particular year that will be paid in taxes over the life of that investment. The before- and after-tax rates of return used to calculate that effective tax rate are weighted averages of the rates for every combination of asset type, industry, form of organization, and source of financing; the weights used are the asset values of each combination. All of those rates of return incorporate estimated values for interest rates on corporate debt, rates of inflation, and returns paid by C corporations on equity that are consistent with recent trends and with CBO's economic forecast. Specifically, CBO has incorporated a nominal interest rate on debt for corporate securities of 5.8 percent; a rate of inflation, measured by the price index for urban consumers, of 2.4 percent; and a real return on equity of 5.2 percent.

* = between zero and 0.05 percentage points.

estimate, the act reduces the effective marginal tax rate on capital income, averaged over all types of investment, by between 1.4 percentage points and 3.4 percentage points from 2018 to 2028 (see Table B-1). That in turn stimulates personal saving.

In addition, CBO estimates that the act reduces, on net, the effective marginal tax rate on labor income by 2.2 percentage points in 2018 and by slightly smaller amounts through 2025, thereby encouraging work.[2] Beginning in 2026, the act is projected to boost the rate, as temporary measures that lower it expire and provisions that push it up continue.

Changing the Corporate Income Tax Rate

Before the act was passed, businesses subject to the corporate income tax faced a graduated rate structure. The statutory tax rates were 15 percent, 25 percent, 34 percent, and 35 percent, depending on the business's income. The act replaces that structure with a single rate of 21 percent, beginning in 2018. That change lowers, on average, the tax rate paid by businesses subject to the corporate income tax. The change also contributes to the reduction of the effective marginal tax rate on capital income.

The corporate income tax distorts domestic economic incentives, affecting the decisions made by corporations and investors.[3] In addition, variation among the corporate tax systems of different countries distorts decisions about where to locate international investment.

2. The effective marginal tax rate on labor income is the share of an additional dollar of such income that is unavailable to a worker because it is paid in federal individual income taxes and payroll taxes or offset by reductions in benefits from government programs. That rate, like the effective marginal tax rate on capital income, differs from statutory tax rates by taking into account different features of the tax code (for example, the gradual reduction in the value of the earned income tax credit as income rises). For more information on how changes in after-tax wages distort incentives to work, see Robert McClelland and Shannon Mok, *A Review of Recent Research on Labor Supply Elasticities*, Working Paper 2012-12 (Congressional Budget Office, October 2012), www.cbo.gov/publication/43675.

3. For more information on how the corporate income tax distorts economic incentives, see Congressional Budget Office, *Corporate Income Tax Rates: International Comparisons* (November 2005), pp. 1–9, www.cbo.gov/publication/17501.

Reducing the corporate income tax rate in the United States reduces those distortions in several important ways. First, it reduces the pretax return required to induce businesses to invest. That reduces the user cost of capital and should therefore increase investment. Second, it makes debt financing less advantageous in relation to equity financing—because businesses may deduct the interest on debt from their taxable income, and the value of that deduction becomes smaller when tax rates are lower. Third, the reduction in corporate income taxes increases U.S. and foreign investors' incentives to invest and to locate activities in the United States rather than abroad.[4] Fourth, it reduces the incentive to shift income from the United States to lower-tax countries.

Changing International Taxes

The act changes how the United States taxes the foreign income of U.S. corporations. It also imposes a onetime tax on previously untaxed foreign profits. And it adds measures to discourage profit shifting, a practice in which multinational corporations lower their tax liabilities by shifting reported taxable income from affiliates in countries with higher corporate tax rates to affiliates in countries with lower ones.

Changing the Taxation of Foreign Income. There are two broad ways in which a country may tax the foreign income earned by a domestic corporation. Under a pure worldwide system, any foreign income is taxed immediately by the corporation's home country. Under a pure territorial system, the corporation's home country does not tax foreign income at all.[5]

Under prior law, the United States had a system that more closely resembled worldwide taxation. However, only some types of foreign income—generally those that the government regarded as being passive (such as interest income) or highly mobile—were taxed as the income was earned. Taxes on many types of foreign income earned by a U.S. corporation's foreign subsidiary were deferred until the income was repatriated—that is, distributed to the U.S. parent company. Earnings were considered repatriated if, for example, they were paid out to shareholders as dividends, used to buy back shares, or used to fund an investment in physical capital in the United States.

The 2017 tax act replaces that approach with a system that may more closely resemble territorial taxation. Dividends that a U.S. parent company receives from its foreign subsidiaries will now be exempt from U.S. taxation. However, foreign income that the government regards as passive or highly mobile will still be taxed as the income is earned.

Because the repatriation of foreign earnings triggered tax liability under prior law, some corporations behaved as though they were constrained in how they could use foreign earnings. The new dividend exemption will eliminate that constraint. As a result, corporations will probably repatriate a larger share of their foreign earnings by reducing the amount that they reinvest in foreign economies.

However, the dividend exemption is anticipated to encourage some further profit shifting, because corporations that shift profits from the United States to lower-tax countries can now repatriate them without paying taxes. That increase in profit shifting will reduce the amount of income subject to U.S. taxes.

Onetime Tax on Previously Untaxed Foreign Profits. The tax act also addresses the treatment of undistributed foreign earnings that accumulated before the taxation of foreign income was changed (see Box B-1). It imposes a tax on those undistributed foreign earnings, with separate rates for cash assets (15.5 percent) and noncash assets (8 percent). Corporations must pay the tax regardless of whether they actually repatriate the earnings to the United States—a requirement often called "deemed repatriation"—and have the option of spreading the payment of the tax over eight years. The tax should have only a limited effect on the decisions that corporations make, because it applies only to their existing stock of foreign earnings.

Measures to Reduce Profit Shifting. The act contains several provisions to reduce corporations' incentive to shift profits out of the United States. Two

4. For more information about those incentives, see Congressional Budget Office, *Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options* (December 2014), www.cbo.gov/publication/49817. For more information about location decisions, see Congressional Budget Office, *International Comparisons of Corporate Income Tax Rates* (March 2017), www.cbo.gov/publication/52419.

5. For a more detailed description of both approaches, see Congressional Budget Office, *Options for Taxing U.S. Multinational Corporations* (January 2013), www.cbo.gov/publication/43764.

Box B-1.

Repatriation of Undistributed Foreign Earnings

Before the 2017 tax act was enacted, a multinational corporation (MNC) could defer paying taxes on foreign earnings until they were distributed to the MNC's parent company in the United States. Earnings were considered distributed if, for example, they were paid out to shareholders as dividends, used to buy back shares, or used to fund an investment in physical capital in the United States. To avoid the tax cost, MNCs left large amounts of earnings in their foreign subsidiaries—a total of $2.6 trillion as of 2015, according to the staff of the Joint Committee on Taxation.[1]

The 2017 tax act mandates "deemed repatriation" for those accumulated foreign earnings, which means that MNCs will pay U.S. taxes on the earnings even if they are not distributed to the United States. The act thus eliminates the tax disincentive to distribute those earnings. As a result, MNCs are expected to end up deploying the earnings in their domestic operations more often.

The Congressional Budget Office projects that deemed repatriation will have some effects on MNCs' financial decisions. Before the change in law, some MNCs, to avoid paying the tax cost of using foreign earnings to fund investments and payments to shareholders, used borrowed funds for those purposes, in CBO's judgment. Because MNCs can no longer avoid the tax cost, CBO projects that some will reduce their borrowing. Also, some of the previously undistributed earnings can be paid to shareholders through share repurchases and larger dividends.

On the whole, however, CBO projects that the economic effects of deemed repatriation will be small. The MNCs that refrained from distributing their foreign earnings tended to be established corporations in the high-tech sector that faced low costs in funding domestic activities and probably did not forgo worthy investments as a result of keeping their earnings undistributed. Furthermore, even though the term "repatriation" suggests that the undistributed funds will return to the United States from abroad, they are often already invested in dollar-denominated fixed-income securities issued by U.S. borrowers. The funds are outside the United States only in the sense of being owned by a foreign subsidiary of a U.S. corporation. In fact, MNCs have held a substantial fraction of their undistributed funds as long-term Treasury securities, CBO estimates. Finally, over the past decade, MNCs have paid large amounts of cash to their shareholders through share repurchases even as they have kept earnings undistributed, so it is unlikely that the foreign earnings represent pent-up dividends or investments waiting to happen.

In CBO's projections, the effects of deemed repatriation on MNCs' financial decisions lead to a small decrease in the corporate spread, which is the difference between corporate and U.S. government interest rates. Corporations are expected to reduce their holdings of U.S. government debt and reduce their borrowing. As they reduce holdings of federal debt, interest rates for it will rise; meanwhile, as they borrow less, interest rates for corporate debt will fall. The resulting decrease in the corporate spread should support additional corporate investment but put some upward pressure on the interest rates of Treasury notes.

1. Thomas A. Barthold, Joint Committee on Taxation, letter to the Honorable Kevin Brady, Chairman, House Ways and Means Committee, and the Honorable Richard Neal (August 31, 2016), https://go.usa.gov/xQrVY.

provisions—which impose a tax on global intangible low-tax income (GILTI) and create a deduction for foreign-derived intangible income (FDII)—reduce corporations' incentive to locate high-return assets (which are often intangible assets, such as intellectual property, or IP) in low-tax countries. The provisions reduce that incentive by applying special treatment to profits that exceed a specified return on tangible assets (such as equipment and structures).[6]

In addition to reducing profit shifting through the location of intangible assets, the GILTI and FDII provisions affect corporations' decisions about where to locate tangible assets. By locating more tangible assets abroad, a corporation is able to reduce the amount of foreign income that is categorized as GILTI. Similarly, by locating fewer tangible assets in the United States, a

6. The GILTI provision imposes a tax on foreign income that exceeds a 10 percent return on foreign tangible assets if a multinational corporation's average foreign tax rate is below a certain threshold. The FDII deduction applies to U.S. profits that exceed a 10 percent return on U.S. tangible assets. The deduction is proportional to the share of U.S. income that is derived from foreign sales.

corporation can increase the amount of U.S. income that can be deducted as FDII. Together, the provisions may increase corporations' incentive to locate tangible assets abroad. (Like profit shifting, such decisions change the locations of reported profits—but they are not classified as profit shifting, because they involve actual economic activity rather than simply reporting.)

Another provision, the base erosion and antiabuse tax (BEAT), limits the ability of both U.S. and foreign multinational corporations to use related-party transactions to shift profits from the United States to lower-tax countries. (Related-party transactions are transactions between the affiliates of a multinational corporation.) BEAT imposes a minimum tax on relatively large multinational corporations, which must pay the larger of two amounts: their regular tax liability, and a tax at a specified rate (generally 10 percent) on a broader measure of U.S. taxable income that is adjusted for related-party transactions.

Changing the Taxation of Domestic Business Activity

The 2017 tax act makes numerous changes to tax provisions that affect both corporate and noncorporate businesses. Those changes limit or eliminate some tax preferences and thus increase the tax base (that is, the total amount of income subject to tax); provide incentives for certain types of investments by allowing businesses to deduct the costs more rapidly; and create a new deduction for certain owners of pass-through businesses (which are businesses whose profits are taxed not directly through the corporate income tax but when their owners pay income tax on their share of profits).[7] On net, those changes reduce the effective marginal tax rate on capital income paid by corporate and noncorporate businesses.

Base Expansion. The act expands the business income tax base in a number of ways. One is a new limit on net interest deductions; another modifies the treatment of losses.

Interest Limit. Under prior law, a business could generally deduct its interest expense when calculating its taxable income. For businesses whose gross receipts are greater than $25 million, the act limits the deduction of interest expense to an amount equal to a business's interest income plus 30 percent of its adjusted taxable income. The measure of adjusted taxable income used for that determination excludes interest income and expense. It also excludes deductions for depreciation and similar costs through 2021 but then includes them. Business interest that is not deducted because it exceeds the limit may be carried forward—that is, potentially claimed in a future year. Special rules apply to pass-through businesses.

Limiting the deductibility of interest creates an incentive to reduce existing debt and reduces the incentive to issue new debt, particularly for companies that already have substantial amounts of debt. Limiting interest deductions may also increase multinational corporations' incentive to borrow through affiliates that are not in the United States instead of through affiliates that are. That would increase profits reported by affiliates that are in the United States. In addition, the change in the definition of adjusted taxable income in 2022 lowers businesses' capacity to deduct interest, encouraging larger investment and depreciation deductions before 2022.

Limits on the Use of Net Operating Losses. Under prior law, a net operating loss could be deducted from taxable income up to 2 years in the past and up to 20 years in the future. For losses occurring after 2017, the act restricts the deduction to future income (for most industries), and it restricts the deduction to 80 percent of taxable income. In addition, the 20-year limit is repealed.

For the owners of pass-through businesses, trade or business losses can be used to offset current-year income from other sources. The act limits that current-year deduction to $500,000 annually for joint returns and $250,000 for single returns. Any excess loss can be deducted as a net operating loss in the future.

Overall, those provisions treat losses less generously than prior law did. Restricting the deduction of losses to future income will mean that companies will no longer be able to use losses in a way that creates a current-year refund. That change may especially hurt corporations without many liquid assets. In addition, the changes reduce corporations' incentive to claim various deductions that can result in losses.

Deductions for Capital Investments. When a business invests in a tangible asset, it generally deducts the cost

7. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

of the investment over time until it has deducted the full purchase price of the asset. For each type of asset, tax law and regulations prescribe a depreciation schedule that determines the amount to be deducted each year. Under certain circumstances, however, the cost of the asset can be fully "expensed"—that is, fully deducted in the year it is placed in service. The 2017 tax act expands those circumstances for many types of tangible assets but restricts them for certain intangible ones—specifically, research and development (R&D) and software development. It increases the base amount of tangible equipment that can be expensed under section 179 of the tax code to $1 million, and it increases the base amount of investment at which that expensing begins to phase out to $2.5 million. The act also temporarily increases the percentage of the investment in new tangible equipment that businesses can expense from 50 percent of the acquisition cost to 100 percent; between 2023 and 2027, that "bonus depreciation" will be phased down to zero in 20-percentage-point increments.[8] In contrast, investment in R&D and software development must now be deducted in equal proportions over five years if the costs are incurred in 2022 or later; in the past, that investment could be expensed.

The speed with which businesses can deduct their capital spending affects the pretax rate of return needed to induce a new investment; it thus affects the user cost of capital as well. Expensing reduces the user cost of capital by allowing businesses to deduct the cost of investment from their taxable income more quickly. The expansion of expensing for tangible assets should result in more investment in the qualifying types of assets. However, those types were already treated more favorably than nonqualifying types of tangible assets (mostly buildings), and the expansion of expensing will widen that disparity. The result will be some distortion in favor of the qualifying types. Requiring R&D and software development costs to be deducted over five years rather than immediately will increase the cost of capital and thus reduce those types of investment.

Deduction for Certain Owners of Pass-Through Businesses. The profits of pass-through businesses are allocated to their owners, added to their taxable income, and often taxed through the individual income tax. The rate at which those profits are taxed consequently depends on which tax bracket the owner is in. Through 2025, individual income tax rates are generally lower under the 2017 tax act than they would have been under prior law, but not by nearly as much as the corporate income tax rate. However, the act also provides a temporary new deduction to many owners of pass-through businesses through 2025. The deduction is equal to 20 percent of qualified business income, which includes the reasonable compensation of owners for services rendered to the business. Eligibility for the deduction depends on both the owner's income and the nature of the business. The deduction phases out with income for owners of personal-service businesses (such as law firms, medical practices, and consulting firms). For other owners, the deduction may be limited by the wages that the business pays and the property that it owns.

Because it has the same effect as a reduction in the tax rate, the deduction for pass-through businesses lowers the cost of capital for qualifying companies and reduces the disparity between the tax treatments of debt- and equity-financed investment. It also reduces the disparity between the treatments of capital income earned by corporations and of capital income earned by pass-through businesses. However, it may result in different tax rates for different sources of labor income. That difference could occur because the deduction gives owners of pass-through businesses an incentive to underreport their reasonable compensation—a tactic that has been used successfully to avoid self-employment taxes in the past and that is not available to wage earners. In addition, the deduction's different treatment of different industries could further affect economic decisions.

Changing Individual Income Taxes

The 2017 tax act changes individual income taxes, lowering statutory tax rates but also broadening the tax base through various provisions. On net, the act reduces marginal tax rates: Provisions that reduce statutory rates and expand the standard deduction push marginal rates down, an effect only partly offset by provisions that limit itemized deductions and eliminate personal exemptions.

Most of the provisions involving individual income taxes expire at the end of 2025. The temporary nature of those provisions will affect the behavior of some taxpayers; they will try to earn more during the years when rates are lower or to delay deductible expenses—whose value rises as rates increase—until after 2025. Many other

8. The bonus depreciation percentage was 50 percent in 2017; under prior law, it was scheduled to be 40 percent in 2018, 30 percent in 2019, and zero thereafter.

taxpayers will not change their behavior as a result of the provisions' temporary nature. That might occur because they cannot change the timing of their taxable income, because they expect policymakers to permanently extend the provisions, or because they are unaware of the expiration dates.

Temporary Reduction in Individual Income Tax Rates. Under prior law, taxable ordinary income earned by most individuals was subject to the following seven statutory rates: 10 percent, 15 percent, 25 percent, 28 percent, 33 percent, 35 percent, and 39.6 percent.[9] Different rates applied to different brackets of people's taxable ordinary income. The 2017 tax act retains the seven-rate structure but reduces most of the rates; the new rates are 10 percent, 12 percent, 22 percent, 24 percent, 32 percent, 35 percent, and 37 percent. The act also expands the width of the brackets, increasing the number of taxpayers subject to lower rates.

The lower tax rates are projected to increase the supply of labor.[10] Because they will increase after-tax returns on investment, they are also anticipated to boost investment by pass-through businesses, which are taxed through the individual income tax.[11]

Temporary Reduction in the Amount of Income Subject to the Alternative Minimum Tax. Some taxpayers are subject to the alternative minimum tax (AMT), which was intended to impose taxes on higher-income people who use tax preferences to greatly reduce or even eliminate their liability under the regular income tax. The AMT allows fewer exemptions, deductions, and tax credits than the regular income tax does, and taxpayers are required to pay the AMT if it is higher than their regular tax liability. The 2017 tax act temporarily increases the income levels at which the AMT takes effect. As a result, less income is subject to the AMT.

The changes to the AMT have effects similar to those resulting from the reductions in statutory rates. However, the effect on the labor supply is likely to be smaller, because higher-income people, most of whom are already working full time, are less likely to increase their supply of labor than the population as a whole is.

Temporary Changes to the Standard Deduction and Itemized Deductions. When preparing their income tax returns, taxpayers may either take the standard deduction, which is a flat dollar amount, or itemize—that is, deduct certain expenses, such as state and local taxes, mortgage interest, charitable contributions, and some medical expenses. Taxpayers benefit from itemizing when the value of their deductions exceeds the standard deduction. Under prior law, however, the total amount of most itemized deductions was generally reduced by 3 percent of the amount by which a taxpayer's adjusted gross income exceeded a specified threshold.[12] Other restrictions applied to specific itemized deductions.

The 2017 tax act nearly doubles the size of the standard deduction and repeals the overall limit on itemized deductions, but it also eliminates many small itemized deductions and reduces the amounts that can be claimed for two widely used deductions. First, deductions for state and local taxes—the sum of property taxes and either income or sales taxes—may not exceed $10,000. Second, taxpayers may deduct the interest on no more than $750,000 of home mortgage debt, a reduction from $1.1 million under prior law.

The combination of the higher standard deduction and the restrictions on the two widely used deductions has a number of effects:

- The number of taxpayers itemizing deductions is expected to fall from 49 million in 2017 to 18 million in 2018.
- After-tax income changes for many taxpayers. The increase in the standard deduction causes after-tax income to rise for most taxpayers who did not previously itemize deductions. After-tax income also rises for some higher-income taxpayers, because the effect of restricting the two widely used deductions is offset by the repeal of the limit on total itemized

9. Taxable ordinary income is all income subject to the individual income tax (other than most long-term capital gains and dividends) minus adjustments, exemptions, and deductions.

10. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

11. For discussion of that kind of taxation, see Congressional Budget Office, *Taxing Businesses Through the Individual Income Tax* (December 2012), www.cbo.gov/publication/43750.

12. Adjusted gross income includes income from all sources not specifically excluded by the tax code, minus certain deductions.

deductions. However, after-tax income falls for some homeowners and residents of states and localities with high taxes.

- The restrictions affect the mix of investment. By applying caps to state and local property tax deductions and by limiting the amount of deductible mortgage interest, the act reduces the incentive to buy a house, or to invest in housing in other ways, in relation to the incentive to make other kinds of investment.

Temporary Repeal of Personal Exemptions and Expansion of the Child Tax Credit. Under prior law, taxpayers could generally claim a personal exemption for themselves and each dependent. That exemption reduced their tax burden. In addition, taxpayers with income below specified thresholds were eligible for a tax credit of up to $1,000 for each qualifying child under the age of 17.[13] That credit was partially refundable (meaning that eligible people received money back from the government if the value of the credit was greater than the amount of taxes that they owed).

The act repeals the personal exemption but doubles the size of the maximum child tax credit for most eligible taxpayers; in addition, eligibility for the credit is extended to include more higher-income taxpayers. The maximum refundable portion is increased to $1,400. Taxpayers can also claim a new $500 nonrefundable tax credit for each dependent who is not a qualifying child.

The effects of those provisions vary among groups of taxpayers. After-tax income is projected to decline for most taxpayers, including those without dependents who will no longer benefit from the personal exemption and many other taxpayers for whom the expanded credits do not compensate for the loss of the personal exemption. For many lower-income taxpayers with children, however, after-tax income will increase. That effect occurs because many people with low income do not pay income taxes and will therefore not be affected by the elimination of the personal exemption but will still benefit from the expanded refundable credit if they have children.

13. For more information about the child tax credit, see Congressional Budget Office, *Refundable Tax Credits* (January 2013), www.cbo.gov/publication/43767.

Changing the Estate and Gift Taxes

The value of property transferred at death and of certain gifts made during a person's lifetime is subject to the federal estate and gift taxes.[14] However, such transfers up to a certain cumulative dollar amount are exempt from taxation. The 2017 tax act doubles the amount between 2018 and 2025.

That increase gives people a greater incentive to hold assets and transfer them at death. In addition, the expiration of the increase at the end of 2025 is likely to induce people to make gifts before 2026.

Eliminating the Penalty for Not Having Health Insurance

The Affordable Care Act includes a provision, generally called the individual mandate, that requires most people to have health insurance meeting specified standards and that imposes a penalty on those who do not comply (unless they have an exemption). Under prior law, the size of the penalty was the greater of two quantities: a fixed amount specified in law, or a specified fraction of a household's income. The tax act reduces the size of the penalty to zero, starting in 2019.

Because the size of the penalty increased with household income, it acted as a tax on income. In addition, it encouraged some people to buy subsidized insurance through the marketplaces established under the Affordable Care Act; the result was that they faced higher marginal tax rates, because those subsidies shrink as income rises. Both of those effects discouraged work, so the elimination of the penalty is projected to increase the labor supply slightly.[15]

In addition, eliminating the penalty is expected to make insurance premiums in the nongroup market, where insurance is purchased individually, higher than they would otherwise have been. Insurers are required to provide coverage to any applicant, and they cannot vary premiums to reflect enrollees' health status or to limit

14. For more information about those taxes, see Congressional Budget Office, *Federal Estate and Gift Taxes* (December 2009), www.cbo.gov/publication/41851.

15. For further discussion of those effects, see Edward Harris and Shannon Mok, *How CBO Estimates the Effects of the Affordable Care Act on the Labor Market*, Working Paper 2015-09 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51065.

coverage of preexisting medical conditions. Those features are most attractive to applicants with relatively high expected costs for health care, so eliminating the penalty will tend to reduce insurance coverage less among older and less healthy people than among younger and healthier people, boosting premiums.[16]

Requiring an Alternative Inflation Measure to Adjust Tax Provisions

Many parameters of the tax system are adjusted for inflation, including the individual income tax brackets. Those adjustments prevent a general increase in prices from increasing taxes. Under prior law, most of those adjustments were based on changes in the consumer price index for urban consumers (CPI-U), which is a measure of inflation calculated by the Bureau of Labor Statistics (BLS). Beginning in 2018, the measure used for adjusting most parameters of the tax system will be changed to the chained CPI-U. Whereas the CPI-U measures inflation in the price of a fixed "basket" of goods, the chained CPI-U allows for adjustments in spending patterns by consumers; also, unlike the CPI-U, it is little affected by statistical bias related to the sample sizes BLS uses in computing each index. For both reasons, the chained CPI-U grows more slowly than the CPI-U does.[17] In CBO's projections, the former grows more slowly than the latter by 0.25 percentage points per year, on average.

The change in the measure of inflation will increase revenues because it will accelerate a phenomenon called real bracket creep, in which income is pushed into higher and higher tax brackets because it is rising faster than inflation. Real bracket creep results in individuals' facing higher marginal tax rates, so it reduces the incentive to work. Unlike many of the tax act's changes to the individual income tax, this change is permanent, and the resulting increase in revenues will grow over time.

In 2026, the temporary provisions of the act that push down marginal tax rates will have expired. Because the change in the measure of inflation pushes up marginal rates, the effective marginal rate on labor income will be higher, beginning in that year, than it would have been under prior law, CBO estimates.

How the Act Affects the Economic Outlook

In CBO's projections, the effect of the 2017 tax act is to boost the average amount of real GDP by 0.7 percent over the 2018–2028 period (see Table B-2). Real GDP is boosted by 0.3 percent in 2018 and by 0.6 percent in 2019, and the effect peaks at 1.0 percent in 2022. In later years, the effect is smaller, and by 2028 it has fallen to an increase of 0.5 percent. That pattern arises because the act's effects on real GDP growth are positive initially and then negative.

Like real GDP, real potential GDP is higher in every year of the 11-year period because of the tax act. But through 2022, the increase in real GDP is greater than the increase in real potential GDP (see Figure B-1). The result is that the positive output gap—the amount by which real GDP exceeds real potential GDP—is larger than it would have been otherwise. (Even without the act, real GDP would have been greater than real potential GDP in CBO's baseline projections.)

That larger output gap through 2022 puts some upward pressure on prices. Inflation (as measured by the price index for personal consumption expenditures) is projected to be slightly higher than it would have been otherwise over the first several years of the period and then to be unchanged.

In CBO's projections, the larger output gap and greater inflationary pressure prompt the Federal Reserve to respond by pushing interest rates higher over the next few years than they would have been without the tax act. The rate for 3-month Treasury bills is higher by 0.5 percentage points by 2022, and the rate for 10-year Treasury notes is 0.2 percentage points to 0.3 percentage points higher during the 2018–2022 period. Those higher interest rates and the end of the act's cuts in personal income taxes in 2025 slow the growth of real GDP, reducing the pressure on prices and interest rates. However, as a result of greater federal borrowing and certain provisions of the tax act that affect portfolio decisions, interest rates on 10-year notes are still slightly higher by 2028 than they would have been otherwise.

The projected gains in output generate increases in income for the employees and owners of the businesses

16. For more discussion, see Congressional Budget Office, *Repealing the Individual Health Insurance Mandate: An Updated Estimate* (November 2017), www.cbo.gov/publication/53300.

17. For more information, see the testimony of Jeffrey Kling, Associate Director for Economic Analysis, Congressional Budget Office, before the Subcommittee on Social Security of the House Committee on Ways and Means, *Using the Chained CPI to Index Social Security, Other Federal Programs, and the Tax Code for Inflation* (April 18, 2013), www.cbo.gov/publication/44083.

Table B-2.

Economic Effects of the 2017 Tax Act

												Average		
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2018–2022	2023–2028	2018–2028
Output (Percent)														
Real GDP	0.3	0.6	0.8	0.9	1.0	0.9	0.9	0.9	0.6	0.6	0.5	0.7	0.7	0.7
Real potential GDP	0.2	0.4	0.6	0.8	0.9	0.9	0.9	0.9	0.7	0.6	0.5	0.6	0.8	0.7
Nominal GDP	0.4	0.8	0.9	1.1	1.2	1.2	1.2	1.1	0.9	0.8	0.8	0.9	1.0	0.9
Real GNP	0.1	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.3	0.2	0.1	0.4	0.4	0.4
Contribution of Components to Real GDP (Percentage points)														
Private consumption	0.4	0.6	0.6	0.6	0.8	0.9	0.8	0.7	0.5	0.4	0.3	0.6	0.6	0.6
Private nonresidential fixed investment	0.2	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.4	0.2	0.3
Private residential investment	*	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	*	*	*	-0.1	-0.1	-0.1
Government consumption and investment	**	**	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**	**	**	0.1	0.1
Net exports	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	**	**	0.1	-0.2	*	-0.1
Exports	-0.2	-0.1	-0.1	-0.1	*	*	*	**	**	**	**	-0.1	**	*
Imports[a]	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	*	**	**	-0.2	-0.1	-0.1
Potential Labor and Productivity (Percent)														
Potential labor force	0.1	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.3	0.4	0.3
Potential average labor hours	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	*	0.3	0.2	0.2
Potential total labor hours	0.2	0.5	0.7	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.1	0.6	0.5	0.6
Potential labor productivity	*	-0.1	*	**	0.1	0.1	0.1	0.2	0.3	0.3	0.3	*	0.2	0.1
Employment and Unemployment														
Total nonfarm employment (Percent)†	0.2	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.6
Unemployment rate (Percentage points)	*	-0.1	-0.1	-0.1	-0.1	*	*	**	**	**	**	-0.1	**	*
PCE Price Level (Percent)	**	**	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1
Interest Rates (Percentage points)														
Federal funds rate	0.1	0.2	0.4	0.4	0.5	0.3	**	*	*	*	**	0.3	0.1	0.2
Three-month Treasury bills	0.2	0.2	0.4	0.4	0.5	0.3	0.1	*	*	*	**	0.3	0.1	0.2
Ten-year Treasury notes	0.3	0.2	0.2	0.2	0.2	0.1	**	**	**	**	**	0.2	**	0.1
International Measures														
Net international lending as a percentage of GDP (Percentage points)	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.4	-0.3	-0.4
Net international income as a percentage of GDP (Percentage points)	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	-0.3
Export-weighted exchange rate (Percent)[b]	1.8	1.7	1.9	1.9	1.8	1.7	1.6	1.6	1.6	1.5	1.5	1.8	1.6	1.7
Memorandum:														
Real GDP Growth (Percentage points)	0.3	0.3	0.2	0.1	0.1	*	*	-0.1	-0.2	-0.1	-0.1	0.2	-0.1	**
PCE Price Inflation (Percentage points)	**	**	**	**	**	**	**	**	**	*	*	**	**	**

Source: Congressional Budget Office.

Real values are nominal values that have been adjusted to remove the effects of inflation.

GDP = gross domestic product; GNP = gross national product; PCE = personal consumption expenditures; * = between -0.05 percent or percentage points and zero; ** = between zero and 0.05 percent or percentage points.

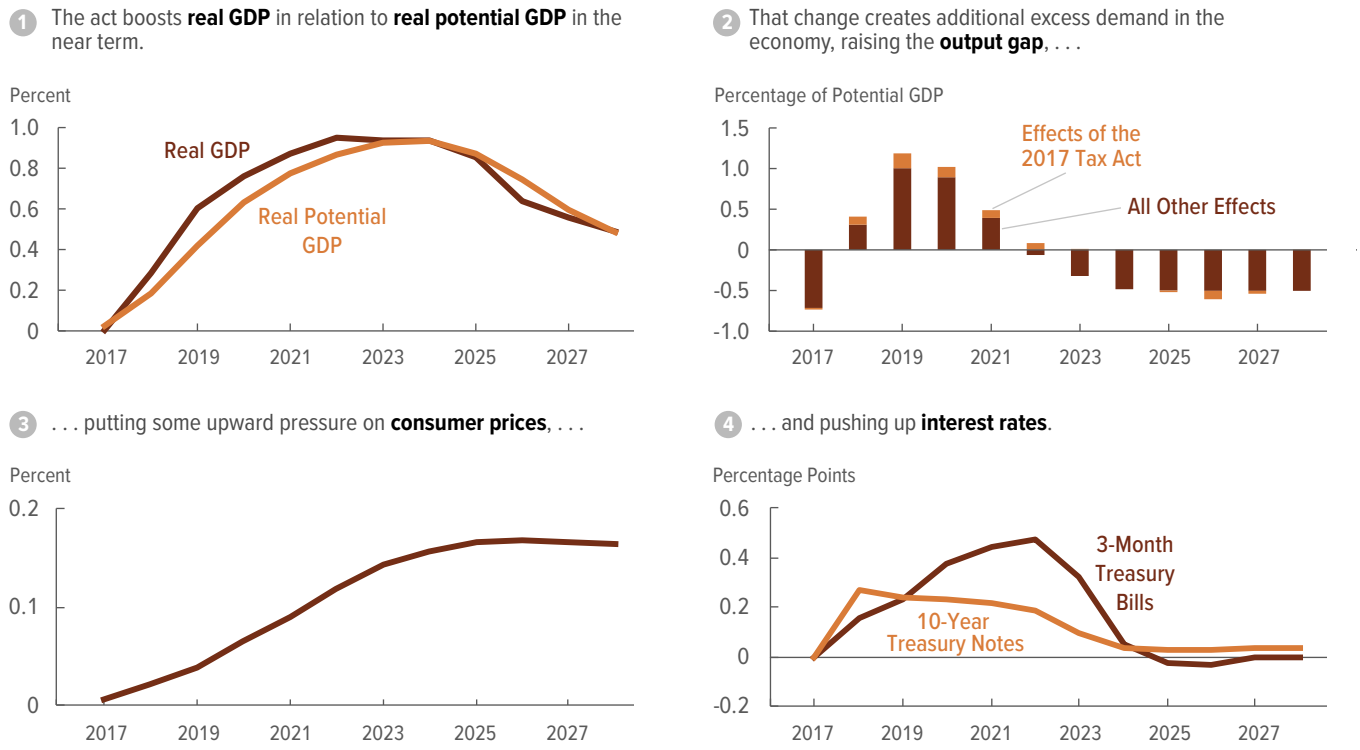
a. A negative value indicates an increase in imports.

b. A higher value indicates an increase in the exchange value of the dollar.

[†Values corrected on April 17, 2018]

Figure B-1.

Economic Effects of the 2017 Tax Act at a Glance



Source: Congressional Budget Office.

Real values are nominal values that have been adjusted to remove the effects of inflation. Potential GDP is CBO's estimate of the maximum sustainable output of the economy. Excess demand exists when the demand for goods and services exceeds the amount that the economy can sustainably supply. The output gap is the difference between GDP and CBO's estimate of potential GDP and is expressed as a percentage of potential GDP. Consumer prices are measured by the price index for personal consumption expenditures.

GDP = gross domestic product.

that produce the output. So employees' total compensation rises in CBO's projections, as do their wages and salaries. (Total compensation includes not only wages and salaries but also bonuses, stock options, benefits, and the employer's share of payroll taxes for social insurance programs.) Corporate profits and business income also increase.

Other organizations have also estimated the economic effects of the 2017 tax act (see Box B-2). The forecasts vary, but most show increases in the level of real GDP over the first few years and a more moderate increase by 2027.

Effects on Potential Output

Various provisions of the 2017 tax act directly affect the productive potential of the U.S. economy. They do so by promoting increases in investment and the potential labor supply. The act is also projected to raise measured total factor productivity, which is the average real output per unit of combined labor and capital services. On net, the act is projected to raise the level of potential output throughout the 2018–2028 period. The effect on potential output peaks at 0.9 percent in the middle years of the period and declines to 0.5 percent in 2028. In CBO's projections, the act's contribution to real GDP at the end of the period results from an increase in the amount of potential output.

Private Investment. Increases in investment boost potential output by increasing the stock of capital goods—structures, equipment, intangible assets, and inventories—that are used to produce output. The act affects private investment through three channels:

Box B-2.

Comparison With Other Organizations' Estimates

Various organizations other than the Congressional Budget Office have estimated the economic effects of the 2017 tax act. In general, the organizations expect the act to increase the level of real gross domestic product (GDP) throughout the periods that they examine. Many of the forecasts follow a pattern similar to the one followed by CBO's projections: increasing positive effects on real GDP over the first several years, then a moderation, and then a more muted effect by 2027.

In the organizations' projections for the 2018–2022 period, the act's expected average effect on real GDP ranges from 0.3 percent to 1.3 percent; CBO's projection is 0.7 percent. For the 2023–2027 period, the average effect ranges from 0.3 percent to 2.9 percent; CBO's projection is 0.8 percent. In 2027, the projected effect ranges from −0.1 percent to 2.9 percent; CBO's projection is 0.6 percent.

CBO limited its comparison to forecasts that broadly examined the final version of the tax act. Other forecasts examined earlier versions of the act or only parts of it, so CBO did not include them in the comparison.

Assorted Estimates of the Effects of the 2017 Tax Act on the Level of Real GDP

Percent

	First Five Years					Tenth Year	Average		
	2018	2019	2020	2021	2022	2027	2018–2022	2023–2027	2018–2027
Moody's Analytics	0.4	0.6	0.2	0.1	0.0	0.4	0.3	0.3	0.3
Macroeconomic Advisers	0.1	0.3	0.5	0.6	0.6	0.2	0.4	0.5	0.5
Tax Policy Center[a]	0.8	0.7	0.5	0.5	0.5	*	0.6	0.3	0.5
International Monetary Fund	0.3	0.9	1.2	1.2	1.0	-0.1	0.9	0.3	0.6
Joint Committee on Taxation	–	–	–	–	–	0.1 to 0.2	0.9	0.6	0.7
Congressional Budget Office	**0.3**	**0.6**	**0.8**	**0.9**	**1.0**	**0.6**	**0.7**	**0.8**	**0.7**
Goldman Sachs	0.3	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Tax Foundation	0.4	0.9	1.3	1.8	2.2	2.9	1.3	2.9	2.1
Penn Wharton Budget Model	–	–	–	–	–	0.6 to 1.1	–	–	–
Barclays	0.5	–	–	–	–	–	–	–	–

Sources: Congressional Budget Office and the organizations listed above.

Real values are nominal values that have been adjusted to remove the effects of inflation.

GDP = gross domestic product; – = not available; * = between -0.05 percent and zero.

a. Values are for fiscal years.

changes in incentives, crowding out (which occurs when larger federal deficits reduce the resources available for private investment), and changes in economic activity.[18]

Some of the changes to investment are financed by domestic investors and some are financed by foreign investors, resulting in changes to international investment flows.

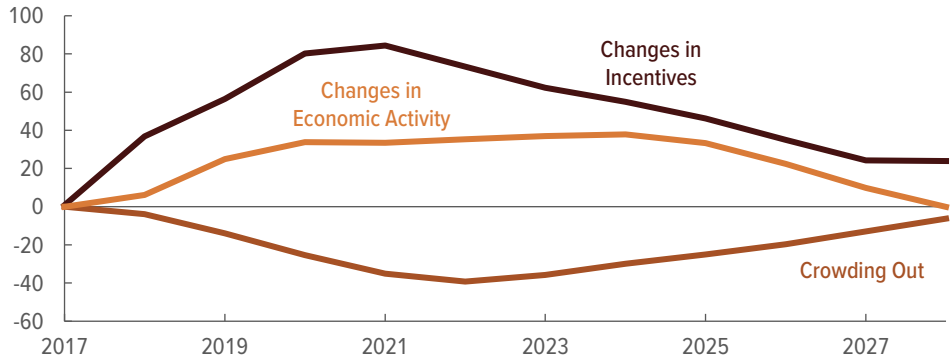
In CBO's projections, total business fixed investment—which consists of investment in nonresidential structures, equipment, and IP products—is higher in every year from 2018 through 2028 than it would otherwise have been. It is boosted by changes in incentives and

18. CBO estimated the act's effects on investment in 32 types of equipment, 23 types of nonresidential structures, 3 types of IP products, 3 types of residential capital, and inventories. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

Figure B-2.

Effects of the 2017 Tax Act on Business Fixed Investment

Billions of Dollars



Business fixed investment is greater through 2028 because the positive effects of changes in incentives and economic activity offset the negative effects of crowding out.

Source: Congressional Budget Office.

Business fixed investment is businesses' purchases of equipment, nonresidential structures, and intellectual property products. The changes in incentives consist of changes in the user cost of capital, which is the gross pretax return on investment that provides the required return to investors after covering taxes and depreciation, and changes in the benefits of locating business establishments in the United States. Changes in economic activity consist of changes in demand for goods and services and changes in the supply of labor. Crowding out occurs when larger federal deficits reduce the resources available for private investment.

stronger economic activity but dampened by crowding out from increased federal borrowing (see Figure B-2).[19] By contrast, residential investment is lower in every year from 2018 through 2028 than it would otherwise have been. Incentives to undertake residential investment are reduced through 2025 by limits on the deductibility of property taxes and mortgage interest, as well as by fewer households' itemizing deductions. Residential investment is reduced throughout the entire period by crowding out.

Changes in Incentives. The tax act affects investment in the United States by changing incentives to invest, including the user cost of capital and thus the minimum return that an investment must achieve to be profitable. The act reduces the user cost of capital in various ways. Some provisions do so by reducing statutory tax rates. Extending bonus depreciation also reduces the user cost of capital. However, the act increases the user cost of capital for owner-occupied housing from 2018 through 2025 and for research and development beginning in 2022.

The act specifies several significant changes in 2026 that affect the user cost of capital for pass-through businesses and for homeowners. As a result, their response to the tax act depends partly on their expectations of future tax policy. In CBO's projections, 20 percent of investment is made by businesses and households that expect provisions scheduled to end in 2026 actually to do so, and 80 percent of investment activity is consistent with the provisions' being extended.[20] (The act also includes some less significant changes in fiscal policy over the 11-year period, and CBO incorporated the projection that all businesses and households behave as if they expect those changes to occur.)

The tax act affects the user cost of capital in different ways for the three kinds of fixed business investment and for residential investment (see Figure B-3).

- Investment in equipment is projected to benefit the most from changes in the user cost of capital because of lower statutory tax rates and the extension of 100 percent bonus depreciation through 2022. The allowed amount of bonus depreciation declines over the following several years, and by 2027, the increase

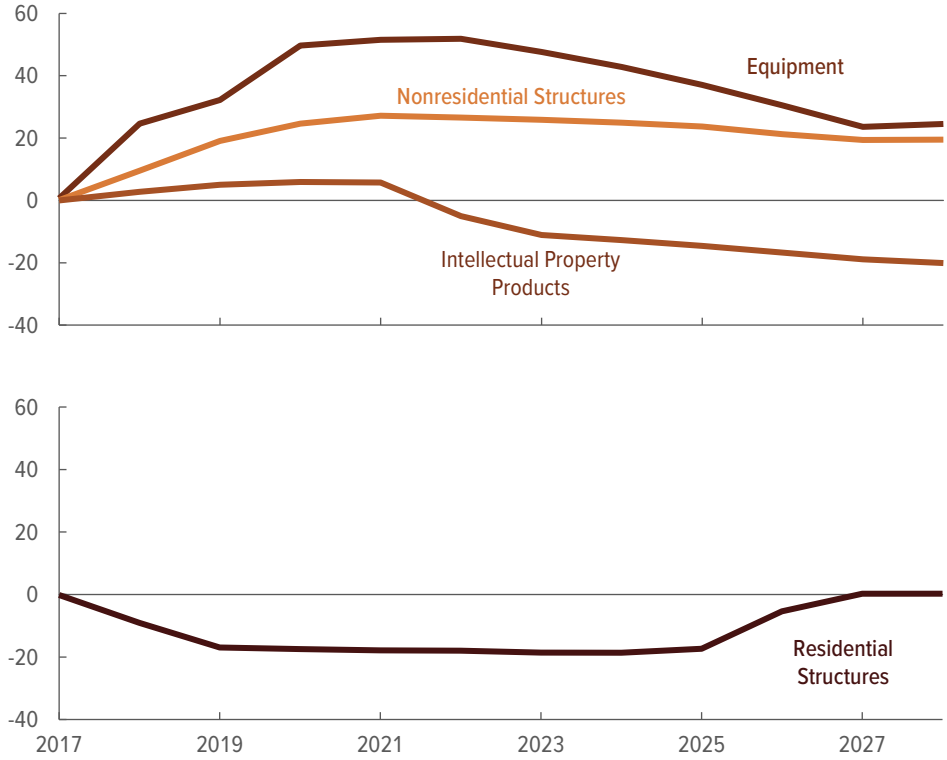
19. The incentives and crowding out that affect business fixed investment also affect investment in inventories.

20. Those projections of expectations are based on historical responses to extensions of major tax provisions. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

Figure B-3.

Effects of the 2017 Tax Act on Investment Through Changes in Incentives

Billions of Dollars



The act's changes in the tax treatment of depreciation eventually reduce the effects of incentives on investment in equipment and intellectual property products.

Limits on the tax deductibility of payments for property taxes and mortgage interest, along with a drop in the number of households that take itemized deductions, reduce spending on residential structures through 2025.

Source: Congressional Budget Office.

The changes in incentives consist of changes in the user cost of capital, which is the gross pretax return on investment that provides the required return to investors after covering taxes and depreciation, and changes in the benefits of locating business establishments in the United States.

in investment that is due to changes in the user cost of capital stems almost entirely from the reduction in the corporate tax rate.

- Investment in nonresidential structures also benefits from lower statutory tax rates. In addition, certain types of structures with relatively short tax lives, such as oil derricks, benefit from bonus depreciation. But by 2027, as with the previous category, the increase in investment that is due to changes in the user cost of capital stems almost entirely from the reduction in the corporate tax rate.

- Investment in IP products is boosted by changes in the user cost of capital through 2021. However, in contrast to its treatment of equipment, the tax act makes depreciation less generous for R&D and for software development beginning in 2022. Consequently, starting in that year, investment in IP products is lower than it would otherwise have been.

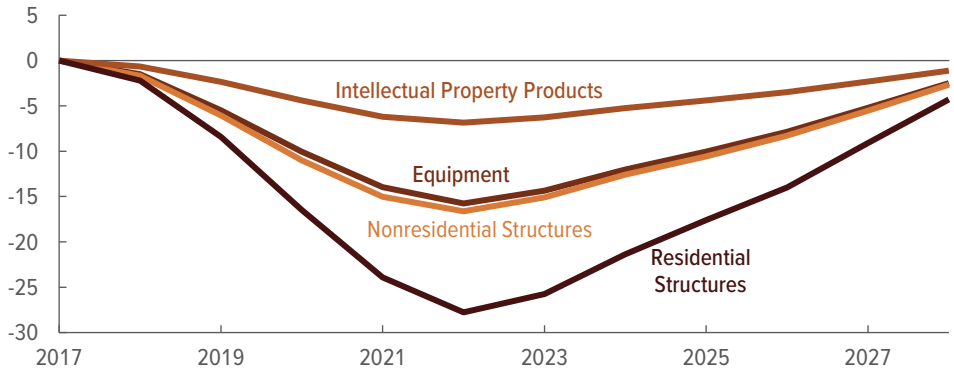
- The bulk of residential investment is in owner-occupied housing. The tax act increases the user cost of capital for homeowners from 2018 to 2025 by limiting the deductibility of property taxes and mortgage interest and by reducing the number of households that itemize. That increase outweighs a reduction in the user cost of capital for the people or pass-through businesses that own most rental housing and that will benefit from lower individual tax rates during that period. Beginning in 2026, the act has little impact on the user cost of residential capital.

The tax act also increases incentives to invest in the United States by encouraging firms to locate their establishments here. The primary means of encouragement is the reduction in the statutory corporate tax rate in the

Figure B-4.

Effects of the 2017 Tax Act on Investment Through Crowding Out

Billions of Dollars



The reduction of investment resulting from crowding out is greatest in 2022, when the effects of the act on the federal deficit are the largest.

Source: Congressional Budget Office.

Crowding out occurs when larger federal deficits reduce the resources available for private investment.

United States. However, that effect is partly offset by other changes. For example, the GILTI and FDII provisions may increase the incentive to locate tangible assets outside the United States.

Furthermore, although the increased incentives to locate establishments in the United States will boost total investment, that effect is muted by the amount of labor available, in CBO's estimation. In other words, barring a change in the amount of labor supplied in the United States, business location decisions are projected to have only a limited effect on investment. That is because the additional labor used by an establishment locating in the United States is no longer available to other establishments. So the increased investment by the new establishment is partly offset by reduced investment by existing establishments.

Crowding Out. CBO estimates that greater federal borrowing ultimately reduces private investment. When the government borrows, it borrows from people and businesses whose savings would otherwise be financing private investment. Although an increase in government borrowing strengthens the incentive to save, the resulting rise in saving is not as large as the increase in government borrowing; national saving, or the amount of domestic resources available for private investment, therefore falls. However, private investment falls less than national saving does in response to government deficits, because the higher interest rates that are likely to result from increased federal borrowing tend to attract more foreign capital to the United States. In CBO's assessment, the crowding out of private investment occurs gradually, as interest rates and the funds available for private investment adjust in response to increased federal deficits.

The reduction in private investment resulting from crowding out occurs primarily because of higher interest rates, so the effects on different categories of investment depend on how sensitive they are to interest rates. In general, interest rates constitute a larger share of the user cost of capital for types of capital that depreciate slowly, so changes in interest rates have a larger effect on investment in those types of capital. For example, a 1 percent rise in mortgage rates would have a larger impact on residential investment than a 1 percent rise in corporate bond rates would have on businesses' purchases of computers. Consequently, investment in residential and nonresidential structures bears a disproportionate share of the impact of larger deficits. The act's crowding-out effects vary not only by type of investment but also as time passes; the strongest effects occur in 2022, when the act's effects on the deficit are largest (see Figure B-4).

Changes in Economic Activity. When demand for their output increases, businesses invest in capital to meet that additional demand; the expanded investment then increases the potential output of the economy, because a larger capital stock increases the businesses' ability to produce output. The impact on investment is greatest during the period in which demand is accelerating. Once businesses have invested enough to meet the additional

demand, the only further stimulus to investment is the need to gradually replace the additional capital.

In CBO's projections, the tax act increases demand primarily by increasing households' demand for goods and services over the next few years, widening the output gap. Consequently, firms engage in investment to meet that demand beyond what they would do in response to changing tax incentives. The act's effect on investment through that channel is positive during the period when the output gap is growing more rapidly than it would have in the absence of the act and negative when it is growing less rapidly.

The act is also projected to expand investment through another change in economic activity: increasing the labor supply. Businesses must purchase additional capital for the new workers to use. However, because firms adjust their stocks of capital more slowly than they adjust the number of their employees, the response of investment to changes in the labor supply is gradual.

How the Increase in Investment Is Financed. The projected increase in U.S. investment would be financed by private domestic and foreign saving. In CBO's projections, the private domestic saving rate initially rises in response to the higher after-tax rates of return on U.S. investment resulting from the tax act. In addition, because the act boosts U.S. economic output, national income rises, and total private domestic saving grows. (However, some portion of the increased private domestic saving is used to finance increased federal borrowing, reducing the amount of saving available for private investment.) Earnings subject to deemed repatriation are expected to be used primarily to reduce corporate debt and thus to contribute only slightly to financing the increase in private investment (see Box B-1 on page 109). Meanwhile, increases in the rate of return on investment in the United States in relation to the rate in other countries will attract additional inflows of foreign saving. CBO estimates, therefore, that a substantial portion of the increase in private investment will be financed through those inflows.

Potential Labor Supply. In CBO's projections, the 2017 tax act also boosts potential output by increasing the potential supply of labor through increases in the potential labor force participation rate and in hours worked per worker. The potential labor force participation rate is higher by an annual average of 0.2 percentage points during the 2018–2028 period; the peak effect is 0.3 percentage points in 2023 and 2024.

Total potential hours worked, the result of increases in both the potential labor force participation rate and average weekly hours, rise by an annual average of nearly 0.6 percent. The peak increase in potential hours worked—more than 0.8 percent—occurs in 2023; by 2028, the effect has dwindled to about 0.1 percent. CBO estimates that more than half of the projected effects on the overall potential labor supply result from increases in the potential labor force participation rate. The remainder result from increases in average weekly hours.[21]

Those effects occur because the tax act changes incentives to work, particularly by lowering statutory individual income tax rates and by making other changes that lower marginal tax rates through 2025.[22] In the following years, however, most of the relevant provisions that lower tax rates expire, and marginal rates will be higher than under prior law, primarily because of the new measure of inflation that the act specifies for adjusting various parameters of the tax system. As a result, the act reduces incentives to work in those years. An exception is the act's elimination of the penalty for not having health insurance. That elimination is permanent, so its effect on the potential labor supply—slightly increasing it, in part because the size of the penalty increased as household income increased, causing it to act as a tax on income—is projected to be permanent.

CBO expects that it will take time for people to respond to provisions in the act. The agency's estimates therefore account for the time that it takes for people to understand the act's effects and to make adjustments in how much they work. For example, the estimates reflect the speed with which people are expected to increase their supply of labor in response to lower tax rates in the early years of the 11-year period and to decrease that supply after provisions expire later on.

21. Even if that estimate of the relative shares were different, the estimated change in total potential hours worked would not change, and therefore the estimate of potential output would not either.

22. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

Also, as with expectations about capital costs, CBO incorporated the projection that 20 percent of people anticipate the scheduled expiration of many of the bill's provisions in 2025. Those people respond by supplying more labor in the years when tax rates are scheduled to be temporarily low. They also begin reducing their supply of labor even before the rates are scheduled to increase, because such adjustment is costly. People who are projected to be surprised by the act's change in tax rates have more muted responses to the lower rates before 2025 and also a more muted response to the increase afterward. Taken together, over the 11-year period, CBO's projections of the average labor response to the tax act are not much affected by the agency's projections of people's different expectations.

Potential Productivity. Over the first few years of the 2018–2028 period, CBO projects, the 2017 tax act will not have much net effect on potential labor productivity, which is defined as real potential output per potential hour of labor (see Table B-2 on page 115). If the contribution of capital to output rises more than the contribution of potential hours of labor, potential labor productivity rises. At first, the act is projected to boost hours and capital by similar amounts, so the effect on potential labor productivity is small. But in later years, the contribution of capital to output has increased more than the contribution of potential hours, and by 2027, potential labor productivity is increased by 0.3 percent. Because the increase in the level of potential labor productivity is roughly unchanged between 2027 and 2028, it has little effect on potential output growth by the end of the 11-year period.

The act is also projected to raise potential output slightly by discouraging profit-shifting strategies that historically have suppressed measured total factor productivity. The act is expected to encourage firms to claim as domestic production the services of IP that were previously claimed as production abroad (see Box B-3 on page 124). In CBO's estimation, even though the firms made that claim, those services have been and continue to be generated by IP assets that are included in estimates of the domestic capital stock. As a result, the shift in the reported location of services associated with that IP will result in an increase in measured domestic output even though there is no corresponding increase in measured domestic inputs of labor or capital. Another way of looking at the shift is that more reported production is being generated by the same measured amount of labor and capital. That is the definition of an increase in total factor productivity. CBO has therefore adjusted its projections of potential total factor productivity by only a slight amount each year to account for the anticipated increase in output that is not matched by an increase in inputs.

Effects on Actual Output

In CBO's projections, the 2017 tax act boosts the demand for goods and services, accelerating the growth of actual output in relation to the growth of potential output over the first half of the 2018–2028 period. As a result, the output gap is 0.1 percentage point larger between 2018 and 2022 than it would have been otherwise, on average. Heightened overall demand is projected to increase consumer spending, increase employment further above CBO's estimate of its potential level, reduce net exports (that is, exports minus imports), and slightly increase inflation. However, because most provisions of the act that relate to individual income taxes expire and thus subtract from overall demand after 2025, the output gap is 0.1 percentage point smaller in 2026 and slightly smaller in 2027 than it would have been otherwise.

Consumer Spending. The effect of the act on real GDP over the next few years derives largely from its impact on consumer spending. The act reduces individual income tax revenues, increasing households' disposable income and thereby their spending. The changes to individual income taxes include temporary changes to tax rates, the standard deduction, the personal exemption, the child tax credit, itemized deductions, and the alternative minimum tax.

Higher- and lower-income households adjust their spending differently, on average, in response to such increases in disposable income. CBO accounted for those differences by assessing the distribution of tax cuts among income groups.[23] In CBO's assessment, lower-income households spend a larger share of the additional income in such cases than higher-income households do.

CBO's estimate of the overall effect on consumer spending also incorporates the agency's assessment of the act's

23. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

impact on equity and housing wealth. In CBO's projections, lower corporate taxes contribute to the boost in consumer spending by increasing the after-tax earnings of businesses, thereby raising the equity wealth of businesses' shareholders. Countering that effect are the act's changes related to the standard deduction for individuals and to the treatment of state and local taxes and mortgage interest deductions, which are expected to make house prices lower than they would be otherwise. CBO does not expect the provisions that govern repatriation of businesses' foreign earnings to affect consumer spending significantly (see Box B-1 on page 109).

Furthermore, CBO's estimate of the act's impact on consumer spending accounts for the elimination of the penalty for not having health insurance. That change means that people will be less likely to obtain coverage, decreasing subsidies and affecting consumer spending.

Analysis of the act's effect on consumer spending is complicated by the fact that most of the changes to individual income taxes are scheduled to end after 2025. What people expect about expirations matters; a change in disposable income that they consider transitory is likely to affect their spending less than one that they expect to last longer. In CBO's projections, about 80 percent of consumer spending is undertaken by people who believe that the individual income tax cuts will be extended beyond 2025, and the remainder is undertaken by people who believe that they will end as scheduled. (Those specifications are analogous to what CBO used for expectations of fiscal policies affecting decisions to work and invest.) But CBO's estimate of the overall change in consumer spending in the next few years would not change very much if the agency used different specifications, because the expectations in this case relate to relatively distant events.

In later years, the end of most provisions related to individual income taxes slows the growth of consumer spending. In CBO's projections, those changes subtract from disposable income and overall demand in 2026 and 2027.

Net Exports. In the near term, the act is projected to boost real imports, reduce real exports, and therefore lower real net exports. In CBO's projections, imports rise in the near term because the act raises the domestic demand for goods and services. For example, the capital investment stimulated by the act will raise demand for imported capital goods (such as computers and machine tools) and for imported materials (such as steel and aluminum). Furthermore, when the domestic economy is operating above its potential, as it is in CBO's projections, additional increases to production are costly and difficult, making the propensity to import goods and services particularly strong. And higher domestic demand can push exports down as firms concentrate on satisfying that demand.

In addition, CBO expects the act to moderately increase the exchange value of the dollar in 2018 (see Table B-2 on page 115).[24] Increased demand for U.S. assets, which results mainly from the increase in the rate of return on those assets, strengthens the dollar in CBO's projections. That stronger dollar causes export prices to rise and import prices to decline. Consequently, real exports decrease, real imports increase, and real net exports fall.

CBO expects the act's initial effects on real net exports to begin to dissipate after 2019. One reason is that the act's effect on the exchange value of the dollar is projected to gradually decline after 2020. In addition, the expiration of the cuts in individual income taxes dampens consumer spending and thus imports. By 2026, CBO expects the act's effect on real net exports to disappear.

The Labor Market. Over the next few years, the wider output gap, and the resulting increase in demand for labor and upward pressure on wages, are projected to raise employment and hours worked further above CBO's estimate of their potential levels. The agency expects the tax act to initially lower the unemployment rate by a small amount, slightly widening the gap between that rate and the natural rate of unemployment over the 2018–2022 period. (The natural rate of unemployment is the rate of unemployment that results from all sources except fluctuations in overall demand.) The unemployment rate is projected to be, on average, 0.1 percentage point lower—and the labor force participation rate and total hours worked to be, respectively, 0.2 percentage points and 0.7 percent higher—than they would have been otherwise between 2018 and 2022.

24. CBO's measure of the exchange value of the dollar is an export-weighted average of the exchange rate indexes between the dollar and the currencies of leading U.S. trading partners. An increase in that measure indicates that the dollar is appreciating.

Box B-3.

The Effects of Profit Shifting on Economic Statistics

The profit-shifting strategies used by multinational corporations (MNCs) affect many economic indicators. All of the strategies distort data about U.S. taxable income by inflating reported foreign income while reducing reported domestic income. But the strategies alter other statistics in different ways.

Although the 2017 tax act includes a number of provisions that discourage profit shifting, it may encourage some profit shifting by exempting foreign dividends from U.S. taxation. On net, the Congressional Budget Office projects, the changes in tax law will reduce profit shifting by roughly $65 billion per year, on average, over the next 11 years. Most of that projected reduction can be attributed to less use of the debt allocation and intellectual property (IP) transfer strategies discussed below.[1]

Locating MNCs' Debt in High-Tax Countries. By allocating a greater share of debt, and the associated deduction for interest payments, to high-tax countries, an MNC can reduce the amount of taxable income reported in those high-tax countries.[2] In CBO's projections, the reduction in profit shifting through decisions about debt location accounts for about half of the $65 billion total reduction in profit shifting resulting from the tax act.

When a U.S. affiliate of an MNC borrows from a foreign bank on behalf of the entire MNC (thus allocating debt to the United States), that loan shows up in U.S. international investment position accounts as an increase in foreign-owned U.S. assets. The result is a reduction in the United States' net international investment position.

Locating debt in the United States can alter net international lending—which is national saving minus domestic investment—if that debt is borrowed from foreign investors. Net international lending is also equal to the sum of net international income (which is the difference between the income earned by U.S. residents from foreign sources and the income earned by foreign individuals from U.S. sources) and net exports (which are exports minus imports). The reason that locating debt in the United States affects net international lending is that the reduction in the U.S. net international investment position leads to a reduction in net international income. Because there is no corresponding change in net exports, net international lending declines, along with gross national product. But because reported production is unaffected, gross domestic product (GDP) is unchanged.

The act's reduction in the U.S. corporate tax rate, combined with the new rules governing the deduction of interest, will reduce some use of this strategy. Before the act was enacted, a relatively high statutory tax rate made the United States an attractive location for debt. But now, because the United States is unlikely to continue to be the highest-taxed jurisdiction for many MNCs, some will move their debt to affiliates in countries with a higher corporate tax rate.

Transferring Intellectual Property. When an MNC moves its IP from an affiliate in a high-tax country to an affiliate in a low-tax country, that MNC can report less of its taxable income in the high-tax country and more in the low-tax country. CBO projects that the tax act's reductions in profit shifting through the transfer of IP will account for roughly one-third of the total projected reduction in profit shifting over the next 11 years.

Profit shifting through the international transfer of IP distorts real U.S. product statistics (that is, statistics adjusted to remove the effects of inflation) and real GDP. Royalties and other revenues derived from IP are counted in the national income and product accounts—official U.S. accounts that track the amount and composition of GDP, the prices of its components, and the way in which the costs of production are distributed as income—as real production of IP services. When IP assets are transferred from the United States to another country, the real services derived from those assets are attributed not to the United States but to the other country, so real net exports and real GDP are reduced. However, unlike locating debt in high-tax countries, transferring IP has no effect on net international lending, because any reductions to net exports associated with IP transfers are matched by an additional dollar of net international income.

1. MNCs use many strategies to shift profits to low-tax countries. For purposes of simplification, CBO has categorized all of them into the three types described here.

2. The same incentive exists for a variety of other costs that benefit an MNC, such as costs for headquarters. CBO focuses on debt both because it is the mechanism that this strategy usually employs and because the choice of where to locate debt has economic effects that are similar to those resulting from the use of the other mechanisms.

Continued

Box B-3. Continued

The Effects of Profit Shifting on Economic Statistics

CBO estimates that the reduction in the U.S. corporate tax rate, combined with the new rules governing the treatment of income from high-return investments (much of which is derived from IP), will reduce corporations' incentives to shift profits by transferring IP outside the United States. However, that effect is expected to be modest. IP is especially easy to relocate, so MNCs are typically able to locate it in whichever affiliates face the lowest tax rate on the income that it generates. Because tax havens outside the United States will continue to have relatively low tax rates, CBO projects that most IP currently located there will remain there. For newly created or future IP, the changes resulting from the tax act and the fixed costs of transferring IP to foreign affiliates will probably deter some small amount of profit shifting.

Setting Transfer Prices. MNCs can reduce their U.S. taxes by strategically setting transfer prices—the prices that affiliates of the same MNC charge each other across national boundaries.[3] To minimize profits earned in high-tax countries, MNCs can systematically overstate the prices that affiliates in high-tax countries pay for imports from foreign affiliates and understate the prices that affiliates in high-tax countries charge for exports to foreign affiliates.[4] CBO projects that reduced profit shifting through that strategy will account for only a small portion of the projected $65 billion annual reduction in profit shifting.

That strategy tends to distort reported economic statistics about trade prices: In CBO's view, the official U.S. export price indexes are lower than they would have been otherwise, and import price indexes are higher. Those inaccuracies distort overall U.S. price indexes that use trade prices as an input, such as the GDP deflator.

By distorting economic statistics about trade prices, the strategic setting of transfer prices also affects the national income and product accounts. The strategy leads nominal exports to be understated and nominal imports to be overstated, thereby reducing official measures of net exports and nominal GDP.

Strategically setting transfer prices alters the *composition* of net international lending. But like transfers of IP, the strategy has no effect on the total *amount* of net international lending, because each dollar that the strategy removes from net exports is offset by a dollar of foreign profit added to net international income. And because transfer prices do not affect total national income, gross national product (the sum of domestic income and net international income) is likewise unchanged.

3. Technically, transferring IP to affiliates in low-tax countries can also be categorized as strategically setting transfer prices. However, profit shifting through IP transfers and profit shifting through setting the transfer prices of tangible assets distort statistics in different ways.

4. MNCs are required to set transfer prices similar to the prices that would be paid for goods and services in market-based transactions. However, for some traded goods and services, it is difficult to find comparable market prices. For those transactions, MNCs have more leeway to strategically set transfer prices to minimize tax liability.

And nonfarm employment is projected to be, on average, about 0.6 percent higher over the 11-year period, representing about 0.9 million jobs (see Table B-2 on page 115).*

Inflation. CBO expects the 2017 tax act to have a positive but small effect on consumer price inflation over the next few years. That expectation results from CBO's estimates that the act will only slightly widen the gap between the actual and natural rates of unemployment and that the link between general price inflation and labor market conditions has been weak in recent years. In addition, the act is expected to slow growth in the prices of imported goods, slightly dampening the inflationary pressure from labor markets, particularly in the near term. Finally, expectations of inflation, which have been low and relatively stable since the late 1990s, are expected to remain close to the Federal Reserve's long-run goal in the coming years, as consumers and businesses expect the central bank to successfully adjust monetary policy to prevent inflation from deviating excessively from its target.[25]

As a result, core PCE inflation—that is, inflation for personal consumption expenditures, excluding prices for

25. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

[*Values corrected on April 17, 2018]

food and energy—is expected to be very slightly higher each year between 2018 and 2025. The total PCE price index is expected to rise slightly more quickly than that, as is the consumer price index; both are projected to be higher by 0.1 percent through 2023, on average, than they would have been in the absence of the act and to be higher by 0.2 percent in 2028.

Effects on Interest Rates

In response to the projected widening of the output gap and the greater inflationary pressure, CBO expects the Federal Reserve to raise short-term interest rates more rapidly over the next few years than it would have if the 2017 tax act had not been enacted. As a result, the federal funds rate (the interest rate that financial institutions charge each other for overnight loans of their monetary reserves) is projected to be 0.5 percentage points higher in 2022 than it otherwise would have been. The faster increase in interest rates is expected, in turn, to restrain the boost in output by dampening consumption and investment spending, thereby limiting the increase in demand for labor and keeping inflation close to the central bank's long-term goal. CBO's projections include a slight and temporary reduction in short-term interest rates by the Federal Reserve in response to the end of most of the act's individual income tax provisions after 2025, but there is no net effect on short-term rates by the end of the 11-year period.

The effects on long-term interest rates follow a similar pattern. However, because long-term rates are partly determined by the average of expected short-term rates, the effect on long-term rates is larger initially but more muted overall.

CBO's projections of interest rates over the 11-year period are also based on the agency's projections of a number of factors that affect the interest rates of U.S. Treasury securities over the longer run. On net, those factors are projected to result in rates of longer-term Treasury notes that are somewhat higher as a result of the tax act, even as rates of shorter-term Treasury securities are roughly unaffected. In CBO's projections, factors that increase the interest rates of Treasury securities over the period include the increase in federal borrowing and the increase in the after-tax rate of return on capital. Additional factors that increase the rates of longer-term Treasury securities include the reduction in companies' holdings of such securities following deemed repatriation of foreign holdings and an increase in the premium incorporated in the rates of such securities. The tax act increases that premium in CBO's projections because with greater upward pressure on inflation, longer-term Treasury securities become less valuable as a hedge against unexpectedly low inflation. The main factor that decreases the interest rates of Treasury securities over the period is the increase in net foreign investment.[26]

Effects on Income

The economic effects of the tax act include not just greater GDP but also higher overall income. Domestic income that derives from the production of goods and services—for labor, employees' compensation and their wages and salaries; for businesses, corporate profits and proprietors' income—is projected to rise with GDP. Flows of net international income also change, reflecting the tax act's effects. And businesses see changes in income in addition to those associated with production, which will affect taxable business income.

Employees' Compensation and Wages and Salaries. Employees' total compensation in the economy behaves in a pattern similar to that projected for total GDP. Over the 2018–2028 period, the act is projected to increase such compensation by an annual average of 0.9 percent; the peak effect is 1.0 percent in 2023. Average total wages and salaries follow a similar pattern—gaining 0.9 percent, on average, and peaking at an increase of about 1.1 percent in 2023.

Corporate Profits and Proprietors' Income. In CBO's projections, domestic corporate profits increase over the 11-year period, becoming 7.1 percent larger in 2028 than they would have been without the 2017 tax act. The increase occurs partly because of greater total GDP and partly because of lower net interest payments by corporations. That second effect happens for two reasons. First, corporations are expected to reduce their debt and interest payments in response to the act's less favorable treatment of interest costs. Second, corporations are estimated to have held debt in the United States to finance domestic investment while they had substantial holdings of foreign profits. As those profits are repatriated, the corporations are expected to reduce their debt and interest payments (see Box B-1 on page 109).

26. For more information, see "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (supplemental material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), https://go.usa.gov/xQcZD.

In addition, the change in the deductibility of net operating losses alters taxable corporate income. The act limits the deductibility of those losses, so corporate income rises. But they may be deducted from future income, so the act largely alters when taxable corporate income will be reported rather than permanently increasing it.

In CBO's projections, nonfarm proprietors' income rises by 1.2 percent over the 2018–2022 period before falling back to a 0.3 percent gain by 2028, roughly following the pattern projected for overall economic activity. Over the 2018–2028 period, the increase averages 0.9 percent.

Profit Shifting and Foreign Income. The act includes changes to the treatment of international income that will affect how multinational corporations shift their profits among affiliates in order to lower their tax liabilities. Three of the most widely used profit-shifting strategies are locating debt in affiliates in countries with high corporate income tax rates, transferring intellectual property, and strategically setting transfer prices (the prices that affiliates charge each other across national boundaries; see Box B-3 on page 124). Such profit shifting distorts the national income and product accounts—official U.S. accounts that track the amount and composition of GDP, the prices of its components, and the way in which the costs of production are distributed as income. Profit shifting also lowers taxable corporate income in the United States—by roughly $300 billion each year, recent estimates from the economic literature suggest.[27] CBO attributes most of that amount to decisions about the location of debt and transfers of IP.

In CBO's projections, the provisions of the tax act reduce profit shifting and the resulting statistical distortions, on net. That change in the reported location of profits is expected to result in an increase in taxable income even though there is no direct increase in measured income from domestic inputs of labor or capital. All told, the reduction in profit shifting raises income reported in the United States by roughly $65 billion each year, on average, in CBO's projections over the 11-year period. Changes in the location of debt and transfers of IP account for most of that reduction in total profit shifting.

Effects on Gross National Product. The 2017 tax act is expected to affect GDP and GNP differently. It raises the projected level of real GDP by an annual average of 0.7 percent over the 11-year period, an increase of about $710 per person (in 2018 dollars). Real GNP, by contrast, increases by 0.4 percent, on average, or about $470 per person.[28] The act is expected to increase GNP less than it increases GDP because it shrinks U.S. net international income (see Table B-2 on page 115).

There are two reasons for that decline in net income flows to the United States. First, the increase in foreign investment in the United States that is associated with greater private investment and increased government borrowing generates a fall in net international lending, which is national saving minus domestic investment.[29] In CBO's projections, the act decreases net international lending over the next 11 years by an average of 0.4 percent of GDP (see Figure B-5). The additional income generated by the foreign investment in the United States accrues to foreign investors.

The second reason is that the act alters the rates of return earned on international assets. As the after-tax profitability of U.S. investments rises because of the tax act, foreign investors earn a higher return on their U.S. assets. In addition, the reported rate of return that U.S. investments earn abroad will decline after 2023 as the act

27. That estimate was informed by CBO's calculations and by Fatih Guvenen and others, *Offshore Profit Shifting and Domestic Productivity Measurement*, Working Paper 23324 (National Bureau of Economic Research, April 2017), www.nber.org/papers/w23324; Kimberly A. Clausing, "The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond," *National Tax Journal*, vol. 69, no. 4 (December 2016), pp. 905–934, http://dx.doi.org/10.17310/ntj.2016.4.09; Kimberly A. Clausing, *The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond* (available at SSRN, November 2015, updated June 2016), pp. 905–934, http://dx.doi.org/10.2139/ssrn.2685442; and Gabriel Zucman, "Taxing Across Borders: Tracking Personal Wealth and Corporate Profits," *Journal of Economic Perspectives*, vol. 28, no. 4 (Fall 2014), pp. 121–148, http://dx.doi.org/10.1257/jep.28.4.121. For a discussion of profit shifting and taxable income, see Congressional Budget Office, *An Analysis of Corporate Inversions* (September 2017), www.cbo.gov/publication/53093.

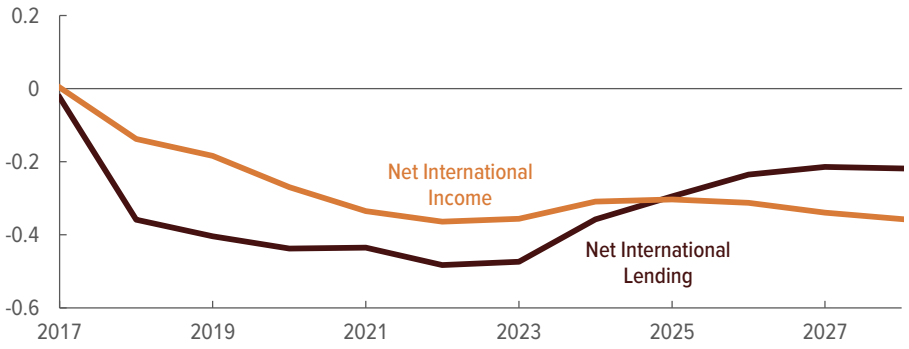
28. The peak effects for the per-person amounts occur in 2024, at $900 for real GDP per person and $640 for real GNP per person; by 2028 the amounts are $550 for real GDP per person and $250 for real GNP per person.

29. In the national income and product accounts, net international lending is called "net lending to the rest of the world." Over most of the past 40 years, it has been negative, indicating that the United States is a net borrower. CBO projects that net lending will remain negative from 2018 through 2028.

Figure B-5.

Effects of the 2017 Tax Act on Net Foreign Transactions

Percentage of Gross Domestic Product



Growth in the federal deficit and in investment increase borrowing from foreigners, which reduces net international income.

Source: Congressional Budget Office.

Net international income is the difference between the income earned by U.S. residents from foreign sources and the income earned by foreign individuals from U.S. sources. Net international lending is a measure that summarizes a country's transactions with the rest of the world; it consists of net exports, net international income, and net transfers.

discourages U.S. companies from shifting their taxable income from the United States to affiliates in foreign countries. By altering the relative rates of return on international assets through those changes, the act reduces net international income and shrinks the difference between GDP and GNP.

How the Act Affects the Budget Outlook

The 2017 tax act had significant effects on CBO's budgetary projections for the 2018–2028 period. The agency took two steps to incorporate those effects into the projections. First, CBO estimated the act's direct effects, which are the effects on the budget that do not take into account any changes to the aggregate economy. For example, this step incorporated the ways in which the act's reduction in tax rates will diminish federal revenues through its effects on taxpayers' behavior. Second, CBO considered macroeconomic feedback—that is, the ways in which the act will affect the budget by changing the overall economy (such as by increasing wages, profits, and interest rates). Incorporating both kinds of effects boosts the projected primary deficit by a cumulative $1.272 trillion over the course of the 11-year period. After debt service too is incorporated, the projected deficit is higher by $1.854 trillion (see Table B-3).

Before incorporating macroeconomic feedback, CBO estimates that the tax act would increase the primary deficit by a cumulative $1.843 trillion over the 11-year period—increasing it through 2026 and decreasing it thereafter.[30] Those deficit increases would increase debt-service costs in every year and by growing amounts that total $471 billion over the period.

Those increases would be partially offset by macroeconomic feedback. In CBO's projections, macroeconomic feedback reduces the primary deficit by a cumulative $571 billion over the 2018–2028 period. That reduction mainly results from the act's boost to taxable income, which increases revenues. The effects on the primary deficit, like those on taxable income, are largest in the early years, peaking in 2019 and then getting smaller. Macroeconomic feedback also raises debt-service costs through two partly offsetting effects: The reduction in the primary deficit lowers federal borrowing and thus debt-service costs, but the act also leads to higher interest rates and thus increases the cost of federal borrowing.

30. Those direct effects on the primary deficit primarily reflect the cost estimate produced by the staff of the Joint Committee on Taxation. See Joint Committee on Taxation, *Estimated Budget Effects of the Conference Agreement for H.R. 1, the "Tax Cuts And Jobs Act,"* JCX-67-17 (December 18, 2017), https://go.usa.gov/xQczr (PDF, 37 KB). However, in contrast to the cost estimate, the estimates reported in this appendix extend through 2028 and include debt-service costs. The direct effects shown in Table B-3 also reflect a number of technical revisions. The sources of those revisions include information about the implementation of the tax act learned in recent months.

Table B-3.

Contributions of the 2017 Tax Act to CBO's Baseline Budget Projections

Billions of Dollars

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total 2018–2022	Total 2018–2028
Effects Without Macroeconomic Feedback[a]													
Effects on the Primary Deficit[b]	194	281	307	304	263	218	183	164	36	-60	-46	1,349	1,843
Effects on Debt-Service Costs	3	8	17	29	39	48	55	63	68	70	71	97	471
Effects on the Deficit[c]	**197**	**289**	**325**	**333**	**302**	**266**	**238**	**227**	**104**	**10**	**25**	**1,445**	**2,314**
Effects of Macroeconomic Feedback[a]													
Effects on the Primary Deficit[b]	-33	-67	-65	-58	-55	-49	-47	-49	-48	-50	-51	-278	-571
Effects on Debt-Service Costs	0	5	12	18	23	27	23	13	3	-4	-11	59	110
Effects on the Deficit[c]	**-33**	**-61**	**-53**	**-41**	**-31**	**-22**	**-24**	**-36**	**-44**	**-54**	**-62**	**-219**	**-461**
Total Contributions to Baseline Projections													
Effects on the Primary Deficit[b]	160	214	243	246	208	169	136	115	-12	-110	-97	1,071	1,272
Effects on Debt-Service Costs	3	14	29	47	63	74	78	76	71	66	60	156	582
Effects on the Deficit[c]	**164**	**228**	**272**	**292**	**271**	**243**	**214**	**191**	**59**	**-43**	**-37**	**1,226**	**1,854**

Source: Congressional Budget Office.

a. Macroeconomic feedback refers to the ways in which the act would affect the budget by changing the economy.

b. The primary deficit is the deficit excluding debt-service costs.

c. Positive numbers indicate an increase in the deficit; negative numbers indicate a decrease in the deficit.

On net, macroeconomic feedback from the act raises projected debt-service costs by $110 billion over the next 11 years.

Uncertainty Surrounding CBO's Estimates

CBO's estimates of the economic and budgetary effects of the 2017 tax act are subject to significant uncertainty. The agency is particularly uncertain about how the act will be implemented; what policies state governments and foreign countries might change in response to the act; what expectations people have about future fiscal policy; how businesses will rearrange their finances in the face of the act; how households, businesses, and foreign investors will respond to changes in incentives to work, save, and invest in the United States; and how changes in economic activity will affect labor and capital income.

Implementation

How the Treasury ultimately implements the tax act will partly determine how businesses and households respond to the various provisions. For example, CBO's projections of the new deduction for owners of pass-through businesses incorporate the expectation that the Treasury will be able to enforce the limits that the act places on the types of income that are eligible for the deduction.

States' and Foreign Countries' Responses

If state governments and foreign countries change their own fiscal policies in unanticipated ways in response to the tax act, those changes will have implications for the act's economic and budgetary effects. For example, many state governments could choose not to incorporate some of the act's provisions—such as those involving personal deductions and bonus depreciation—in their own tax systems. That step would significantly affect how households and firms chose to adapt to the changes. Foreign governments might reduce their corporate tax rates or adjust their tax rules in unanticipated ways in response to the changes in U.S. tax law. In particular, if foreign governments significantly lowered their tax rates on corporate income, that would dampen net inflows of foreign capital. In addition, foreign governments are expected to challenge several of the new tax rules with the World Trade Organization. If those challenges are broadly successful, the United States could be subject to retaliatory tariffs unless the tax provisions were changed.

People's Expectations

In CBO's projections, 20 percent of households and businesses expect fiscal policy to change over the 2018–2028 period as the tax act specifies; others are surprised by those changes. Such expectations can have important effects on how households and businesses respond to the act. For example, if more people expect the reduction in individual income tax rates to be temporary, as the act specifies, more may shift their supply of labor from later years into the years before rates are scheduled to go up. If that happened, the timing of CBO's projections would change, but the average effect over the 11-year period would not be strongly affected.

Profit Shifting by Multinational Corporations

The effect of the tax act's international provisions on profit shifting by multinational corporations is particularly uncertain. One source of uncertainty is the provisions' complexity, which makes it difficult to predict how and when corporations might respond to them. CBO is also uncertain about how foreign governments might change their tax rules in response to the act. For instance, those governments might lower their own corporate income tax rates to better compete for international investment; that change would dampen the act's expected effect on profit shifting. And CBO is uncertain about whether the provisions will be deemed compliant with international rules.

Decisions to Work, Save, and Invest

Many economic effects of the new legislation stem from its effects on individuals' decisions to work and save and on businesses' decisions to invest. CBO's estimates of those effects reflect the agency's assessment of how changes in individual and corporate tax rates affect the supply of labor and the user cost of capital, as well as its assessment of how changes in individuals' disposable income and wealth affect consumer spending. CBO tries to produce assessments that lie in the middle of the distribution of possible outcomes. But if fewer people than CBO expects respond to lower marginal tax rates by participating in the labor force, for example, the boost in potential GDP will likewise be smaller than CBO projects. Another example involves the expected response of international investors to the reduction in U.S. corporate tax rates. If they increase investment more than CBO expects, capital stock will increase more and the effects on actual and potential output will be larger.

Some effects may differ from CBO's assessments because those effects may depend on economic conditions in a way that the agency has not incorporated. For example, CBO has not accounted for the extent to which the act's limits on the deductibility of net operating losses could discourage investment more during periods of economic weakness than in periods of economic strength. (The effect of those limits is uncertain for other reasons as well. For example, they could dampen the positive incentives to invest that result from other provisions in the tax act, a possibility that CBO has not accounted for in its projections.)

Changes in Economic Activity

CBO projects that the tax act will increase labor income and capital income, boosting demand for goods and services over the next several years. But demand may respond more or less to those changes in income than CBO estimates. Moreover, the changes in economic activity resulting from the act may have smaller or larger effects on businesses than CBO estimates. For example, if businesses increase investment more than expected in response to increases in economic activity, labor productivity and wages will rise faster than they do in CBO's projections.