CHAPTER

6

The Effects of Illustrative Budgetary Paths on the Long-Term Outlook

This chapter expands on the analysis in the preceding chapters by showing how the federal budget and the nation's economy would evolve under three illustrative budgetary paths that involve changes in the federal deficit and in debt held by the public. The projections in this chapter represent the Congressional Budget Office's assessment of how deficits and the resulting amount of federal borrowing under the illustrative paths would affect the economy and how those macroeconomic effects would, in turn, feed back into the federal budget.

Under the first two illustrative paths, cumulative deficits—excluding interest payments and before macroeconomic feedback is taken into account—would be reduced by $2 trillion and $4 trillion, respectively, over the next 10 years in relation to CBO's extended baseline.[1] Under the third illustrative path, such deficits would exceed those projected in the extended baseline by $2 trillion over the next decade.[2] In later years, the paths would change deficits by the same percentage of gross domestic product (GDP) as in 2026. (CBO also analyzed the effects on the budget and the economy of limiting Social Security benefits to amounts payable from dedicated funding. See Box 6-1 on page 73.)

In the long term, the paths with smaller deficits and debt would lead to higher output by increasing the amount of money available for private investment. The third path, with larger deficits and debt, would have the opposite effect: It would reduce output by drawing money away from, or crowding out, private investment. In the short term, the paths with lower deficits would reduce overall demand for goods and services by lowering government purchases and disposable income, causing output to be lower than it otherwise would be over the next few years. The path with larger deficits would have the opposite effect, increasing demand and boosting output. Those short- and long-term macroeconomic effects feed back into the federal budget, adding to or subtracting from the paths' direct effects on the deficit, primarily by altering the amount of taxable income and the federal government's interest payments.

When estimating output, CBO focused on effects on gross national product (GNP), which—unlike the more commonly cited GDP—includes the income that U.S. residents earn abroad and excludes the income that foreigners earn in this country. It is therefore a better measure of the resources available to U.S. households.

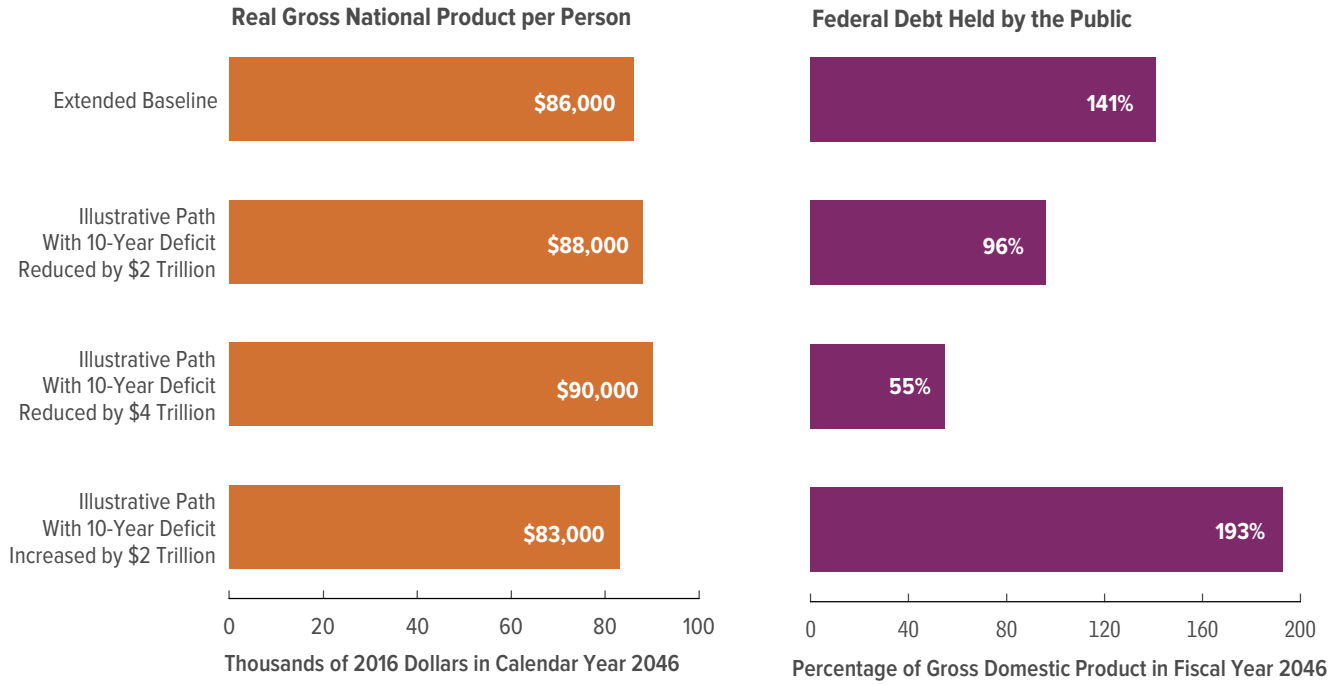
For the three illustrative paths, CBO's analysis yields the following estimates for macroeconomic and budgetary outcomes:

1. Those paths are identical to the illustrative scenarios analyzed last June in *The 2015 Long-Term Budget Outlook*. For more details, see Congressional Budget Office, *The 2015 Long-Term Budget Outlook* (June 2015), Chapter 6, www.cbo.gov/publication/50250.

2. The third path would increase the deficit by an amount similar to that in the alternative fiscal scenario presented in *The 2015 Long-Term Budget Outlook*. That scenario incorporated several assumptions: that certain policies in place in the summer of 2015 but scheduled to change under current law would continue, that some provisions of law that might be difficult to sustain for a long period would change, and that federal revenues and certain kinds of federal spending would remain at or near their historical shares of gross domestic product. In the fall of 2015, some policies that were assumed in that alternative fiscal scenario were permanently enacted in legislation, meaning that an updated version of that scenario would have a considerably smaller effect on deficits in relation to the extended baseline. Therefore, CBO chose to present the budgetary effects of an illustrative path (with unspecified fiscal policies) that would increase the cumulative deficit (excluding interest payments and before macroeconomic feedback is taken into account) by $2 trillion over the next 10 years in relation to the extended baseline.

Figure 6-1.

Output per Person and Debt in 2046 Under CBO's Extended Baseline and Illustrative Budgetary Paths



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The estimates of federal debt held by the public include macroeconomic feedback.

- The path that would reduce deficits (excluding interest payments and before macroeconomic feedback is taken into account) by $2 trillion over the next decade would result in federal debt equal to 96 percent of GDP in 2046, greater than the current 75 percent and considerably above the average of 39 percent over the past 50 years (see Figure 6-1). CBO projects that real (inflation-adjusted) GNP in 2046 would be about 3 percent higher under this path than under the extended baseline.

- The path that would reduce deficits by $4 trillion—defined in the same manner as the first path but with decreases in the deficit twice as large in each year—would result in federal debt amounting to 55 percent of GDP in 2046, still well above its historical average but less than the current percentage. CBO projects that real GNP in 2046 would be about 5 percent higher under this path than under the extended baseline.

- The path that would result in larger deficits—defined in the same manner as the first path but with increases in the deficit each year rather than decreases—would result in federal debt equal to 193 percent of GDP in 2046, about five times as large as its average over the past 50 years. CBO projects that real GNP in 2046 would be about 3 percent lower under this path than under the extended baseline.

In addition to their effects over the long term, the three budgetary paths would have significant effects on the economy during the next few years. Those effects occur through changes in overall demand for goods and services, which are better captured by the measure GDP than GNP. CBO estimates that the decrease in deficits, and thus in overall demand, that would occur under the first two paths would cause real GDP in 2017 to be 0.1 percent and 0.3 percent lower, respectively, than it would be under current law. Under the third path, a boost in demand for goods and services would cause real

GDP to be 0.1 percent higher in 2017 than is projected under current law.

For simplicity, and to avoid presuming which fiscal policies lawmakers might choose to alter the deficit, CBO analyzed the illustrative paths without specifying the tax and spending policies underlying them. Consequently, the projected outcomes under the paths do not reflect any *direct* changes to incentives to work and save; in particular, CBO assumed that marginal tax rates and transfers to working-age people would be the same as they are under current law. CBO also assumed that federal investment under the illustrative paths, and the contribution that such spending makes to future productivity and output, would be the same as under the extended baseline. Therefore, the estimated macroeconomic effects of the budgetary paths in relation to the extended baseline arise solely from changes in deficits and debt. Because the magnitude of the macroeconomic effects is uncertain, CBO reports not only a central estimate for the outcome of each path but also a range of likely outcomes.[3]

Long-Term Economic Effects of the Illustrative Paths

The illustrative budgetary paths examined in this chapter would affect the economy in the long-term by changing federal deficits and debt. Because CBO analyzed the illustrative paths without specifying the tax and spending policies underlying them, the projected outcomes under the paths do not reflect any direct changes to incentives to work, save, and invest. It is important to note that it is difficult to identify policies that might significantly alter the course of budget deficits without directly changing such incentives. Those changes would have various other effects on the economy that are beyond the scope of this chapter.

How Changes in Federal Borrowing Affect the Economy

Changes in federal borrowing affect the economy by altering the amount of money available for private investment. The rest of the discussion in this section focuses on what would happen if federal borrowing increased; decreases would have opposite effects.

Effects on Private Investment. On the basis of existing research on the topic, CBO concludes that increased borrowing by the federal government generally crowds out private investment in productive capital in the long term.[4] Crowding out occurs because the portion of saving that people use to buy government securities is not available to finance private investment. The result is a smaller stock of capital and lower output and income in the long term than would otherwise be the case (all else being equal). Lower income would reduce tax revenues. Federal noninterest spending would also be lower—although the effect would be smaller than that on revenues—if income was lower because Social Security benefits are linked to earnings and because total spending on health care tends to vary with total income over the long term. This analysis incorporates the assumption that changes in income do not affect other noninterest spending.

Two factors offset part of that crowding-out effect: Additional federal borrowing tends to boost private saving, which increases the total funds available to purchase federal securities and finance private investment; and higher interest rates tend to increase net inflows of capital from other countries by attracting more foreign capital to the United States and inducing U.S. savers to keep more of their money at home.

Private saving rises because some people anticipate that policymakers will raise taxes or cut spending in the future to cover the cost of paying interest on the additional accumulated debt, so those people increase their own saving to prepare for paying higher taxes or receiving less in benefits. In addition, the decline in investment caused by crowding out increases the productivity of existing capital because more workers make use of each unit of capital—each computer or piece of machinery, for example. That greater productivity raises the return on capital. A higher return on capital boosts the return on other investments (such as interest rates on federal debt) that are competing for private saving. The resulting increase in those returns makes saving more attractive and thus boosts private saving. However, the rise in private saving is generally a good deal smaller than the increase in federal borrowing,

3. For certain key variables in its long-term economic models, CBO has developed ranges of values that are based on research on those variables; each range is intended to cover roughly the middle two-thirds of the likely values for the variable. To calculate the ranges of estimates for the effects of each set of fiscal policies, CBO used the ranges of values for each variable. To calculate the central estimates, it used values for the variables at the midpoints of those ranges.

4. For a review of evidence about the effect of federal deficits and borrowing on private investment, see Jonathan Huntley, *The Long-Run Effects of Federal Budget Deficits on National Saving and Private Domestic Investment*, Working Paper 2014-02 (Congressional Budget Office, February 2014), www.cbo.gov/publication/45140.

so greater federal borrowing leads to less private investment. CBO's central estimate, which is based on existing research on the topic, is that private saving rises by 43 cents for every one-dollar increase in federal borrowing in the long run, leaving a net decline of 57 cents in savings available for private investment.

The additional net inflows of capital from other countries also prevent investment in this country from declining as much as the increase in federal borrowing. CBO's central estimate, again drawn from existing research on the topic, is that, over the long run, net inflows of private capital rise by 24 cents for every one-dollar increase in government borrowing. However, an increase in inflows of capital from other countries also means that more profits and interest payments will eventually flow overseas. Therefore, although flows of capital into the United States can help moderate a decline in domestic investment, part of the income arising from that additional investment does not accrue to U.S. residents. The result is that greater net inflows of capital keep GDP from declining as much as it would otherwise, but they are less effective in restraining the decline in GNP.[5] Thus, other things being equal, increases in debt cause greater reductions in GNP than in GDP, and reductions in debt lead to greater increases in GNP than in GDP.

All told, CBO estimates that when the federal deficit and borrowing go up by one dollar, private saving increases by 43 cents and inflows of foreign capital rise by 24 cents. Those two offsets to the crowding-out effect result in a net decline of 33 cents in domestic investment in the long run, CBO estimates. To reflect the wide range of estimates in the economics literature of how government borrowing affects domestic investment, CBO also uses a range of estimates for those effects: At the low end of that range, for each dollar that deficits rise, domestic investment falls by 15 cents; at the high end of that range, domestic investment falls by 50 cents.

CBO's estimates of the effects of higher federal debt on private saving, net capital inflows, and interest rates are based on historical experience. However, history may not be a good guide to the effects of rising debt in the current environment because a large and persistent increase in the ratio of debt to GDP is an outcome that is unprecedented in the United States; large increases in debt have been temporary, such as those that occurred during and immediately after wars or severe economic downturns. If participants in financial markets came to believe that policymakers intended to allow federal debt as a percentage of GDP to continue to rise, interest rates would probably increase by more than the historical relationship between federal debt and interest rates suggests. In addition, under such conditions, private saving and net capital inflows might not respond to new federal debt as they have in the past, and crowding out could be more severe.

Effects on the Supply of Labor. The effect of deficits on investment also reduces the amount of capital each worker uses, thereby lowering workers' productivity and wages. Reductions in the wage rate decrease people's incentive to work because reduced compensation for an additional hour of work makes work less valuable than other uses of a person's time. That phenomenon, known as the substitution effect, tends to reduce the labor supply when the wage rate declines. However, because lower wages also decrease the after-tax income that people earn from the work they are already doing, they will need to work more to maintain their standard of living. That phenomenon, known as the income effect, tends to increase the labor supply. On the basis of CBO's review of research on the topic, the agency concludes, as do most analysts, that the former effect outweighs the latter, meaning that a lower wage rate decreases the labor supply.[6] (A higher wage rate would have the opposite effect.) Fewer hours of work result in lower output and income.

To reflect the high degree of uncertainty about the size of the effect that changes in the wage rate have on the number of hours people choose to work, CBO uses a range of

5. The difference in the effect of an increase in debt on GDP and on GNP depends, in large part, on the amount of additional capital that foreigners invest in the United States and on the rate of return that they receive on their investments. The increase in the return on capital in this country and the increase in foreigners' net holdings of U.S. assets—both of which imply increases in the amount of income earned by foreign investors—decrease GNP relative to GDP. In CBO's analyses of fiscal policy, the rate of return earned by foreign investors in the United States changes when the rate of return on capital in this country changes. However, on the basis of the United States' experience in recent decades, that response is estimated to be less than one for one.

6. For details on CBO's estimates of the responsiveness of the labor supply to changes in the after-tax wage rate, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674; and for a review of the academic research about the effects of changes in the after-tax wages on the labor supply, 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.

values in its analyses of fiscal policy.[7] The responsiveness of the labor supply to the wage rate is often expressed as the total wage elasticity (the percentage change in total labor income caused by a 1 percent change in after-tax wages). The total wage elasticity equals the substitution elasticity (which measures the substitution effect) minus the income elasticity (which measures the income effect). In this analysis, CBO's central estimate for the change in the labor supply in response to a reduction in the wage rate corresponds to a total wage elasticity of 0.19 (composed of a substitution elasticity of 0.24 minus an income elasticity of 0.05). CBO's range of likely changes in the labor supply is bounded at the low end by a total wage elasticity of about 0.06 (with a substitution elasticity of 0.16 and an income elasticity of 0.10) and at the high end by a value of about 0.32 (with a substitution elasticity of 0.32 and an income elasticity of zero).

Other Consequences. As Chapter 1 discusses in greater detail, high and rising federal debt would, in the long term, have several negative consequences in addition to the effects just described:

- Increased borrowing would increase the amount of interest that the government pays to its lenders, all else being equal. Those larger interest payments would make it more difficult to reduce future budget deficits, necessitating larger increases in taxes or reductions in noninterest spending.
- Increased borrowing would restrict policymakers' ability to use tax and spending policies to respond to unexpected challenges, such as economic downturns or financial crises. As a result, those challenges would tend to have larger negative effects on the economy and on people's well-being.
- Increased borrowing would increase the probability of a fiscal crisis in which investors lost so much confidence in the government's ability to manage its budget that the government was unable to borrow at affordable rates. Such a crisis would present policymakers with extremely difficult choices and would probably have a very significant negative impact on the country.

7. CBO uses those same values to estimate the effect on the labor supply of changes in after-tax hourly wages.

How CBO Analyzed the Long-Term Effects of Federal Borrowing on the Economy

To analyze medium-term to long-term effects of changes in federal borrowing in the illustrative paths, CBO used an enhanced version of a model originally developed by Robert Solow wherein people base their decisions about working and saving primarily on current economic conditions—especially wage levels, interest rates, and government policies. Their responses to changes in such conditions generally mirror their responses to economic and policy developments in the past; as a result, the responses reflect people's anticipation of future policies in a general way but not their expectations of particular future developments.[8]

Long-Term Effects of the Illustrative Paths With Smaller Deficits

The first two illustrative paths would gradually decrease deficits through unspecified increases in tax revenues, cuts in spending, or some combination of the two.[9] In the long run, the reduced federal deficits and debt under those scenarios would cause output and income to be higher and the ratio of federal debt to GDP to be lower than they would be under the extended baseline.

Deficits

In the two paths that lead to smaller deficits, CBO assumed that the cumulative deficit (excluding interest payments and before macroeconomic feedback is taken into account) between 2017 and 2026 would be $2 trillion or $4 trillion lower than what is projected under current law. The reduction in the deficit in relation to the extended baseline would be comparatively small in 2017 but would increase steadily through 2026; at that point, the reduction in the deficit would be $360 billion, or about 1.3 percent of GDP, under the first path and $720 billion, or over 2.5 percent of GDP, under the second. In each

8. For details of CBO's model, see Congressional Budget Office, *CBO's Method for Estimating Potential Output: An Update* (August 2001), www.cbo.gov/publication/13250. For a general explanation of how CBO analyzes the effects of fiscal policies, see Congressional Budget Office, *How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy* (November 2014), www.cbo.gov/publication/49494.

9. For a comparison of the estimated budgetary and economic outcomes under similar illustrative paths with those under the paths specified by the Honorable Tom Price, Chairman of the House Budget Committee, and his staff, see Congressional Budget Office, *Budgetary and Economic Outcomes Under Paths for Federal Revenues and Noninterest Spending Specified by Chairman Price, March 2016* (March 2016), www.cbo.gov/publication/51260.

Table 6-1.

Long-Term Effects on Real GNP Under CBO's Illustrative Budgetary Paths

Percentage Difference From Level in the Extended Baseline

	2026	2046
Illustrative Path With 10-Year Deficit Reduced by $2 Trillion		
Central estimate	0.5	3
Range	0.3 to 0.8	1 to 4
Illustrative Path With 10-Year Deficit Reduced by $4 Trillion		
Central estimate	1.0	5
Range	0.5 to 1.5	2 to 8
Illustrative Path With 10-Year Deficit Increased by $2 Trillion		
Central estimate	-0.5	-3
Range	-0.8 to -0.3	-6 to -1

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The central estimates and ranges reflect alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

GNP = gross national product.

subsequent year, the reduction, measured as a percentage of GDP, would equal the 2026 reduction.

Output and Interest Rates

Under the first path, which would reduce 10-year deficits by $2 trillion, real GNP would be higher than it would be under the extended baseline by 0.5 percent in 2026 and by about 3 percent in 2046, according to CBO's central estimates (see Table 6-1). According to CBO's ranges of likely values for key variables, the increase in real GNP would probably be between 0.3 percent and 0.8 percent in 2026 and between about 1 percent and 4 percent in 2046. The interest rate on 10-year Treasury securities in 2046 would be about half a percentage point lower under that path than under the extended baseline, according to CBO's central estimate.

Under the second path, which would reduce 10-year deficits by $4 trillion, real GNP would be higher than it would be under the extended baseline by 1 percent in 2026 and by about 5 percent in 2046, CBO estimates. According to CBO's ranges of likely values for key variables, the increase in real GNP would probably be between 0.5 percent and 1.5 percent in 2026 and between about 2 percent and about 8 percent in 2046. The interest rate on 10-year Treasury securities in 2046 would be about three quarters of a percentage point lower under that path than under the extended baseline, according to CBO's central estimate.

CBO projects that in either case, real GNP per person would be substantially higher in 2046 than in 2016 (see Figure 6-2).

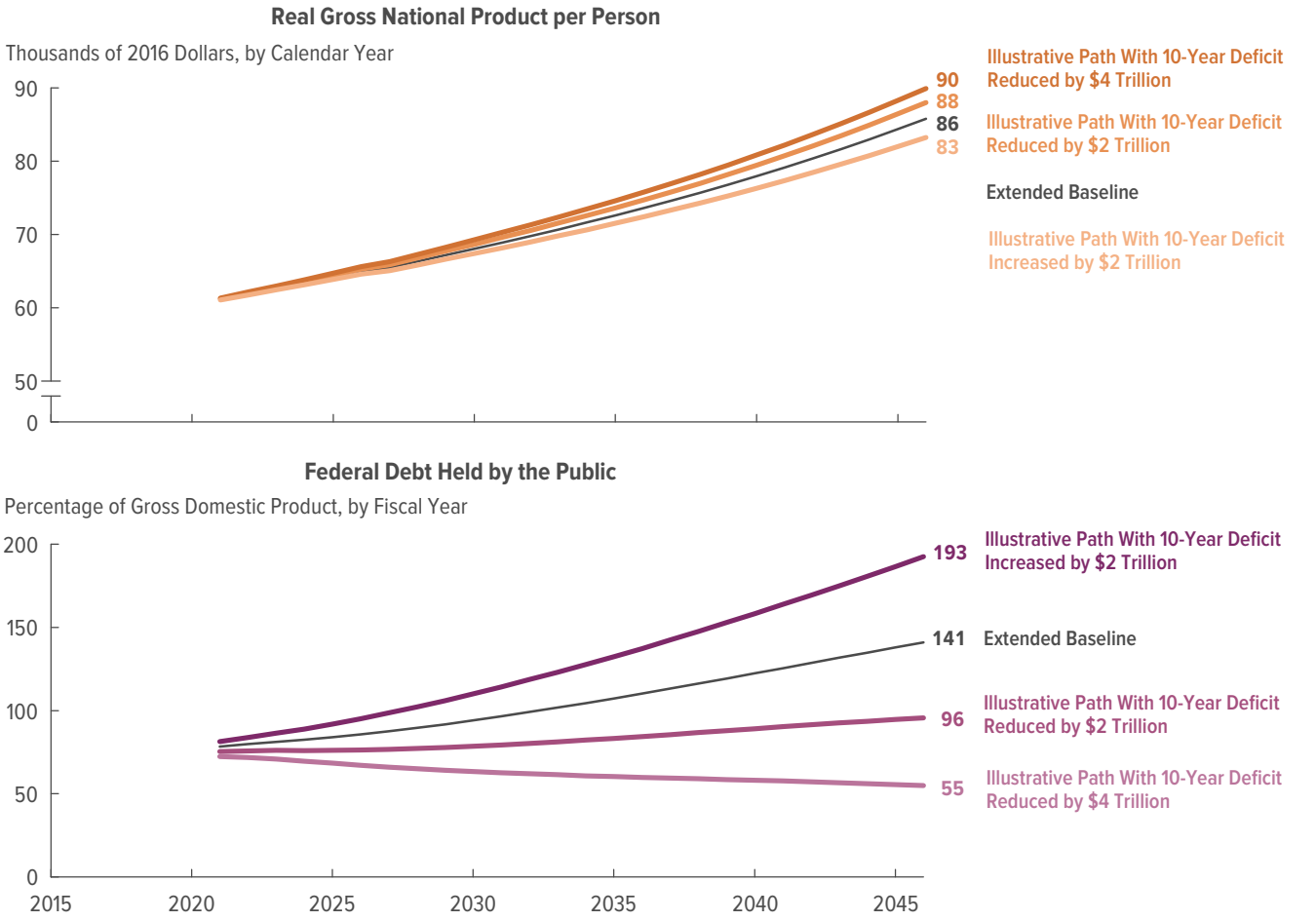
Budgetary Outcomes

The higher output and lower interest rates under the illustrative paths would improve budgetary outcomes in the long term. According to CBO's central estimates, under the first path, federal debt held by the public in 2046 would stand at 96 percent of GDP—45 percentage points lower than it is projected to be under the extended baseline (see Figure 6-2 and Table 6-2). Under the second path, federal debt held by the public would fall to 55 percent of GDP in 2046, 86 percentage points lower than it is projected to be under the extended baseline; such debt is currently 75 percent of GDP and averaged 39 percent over the past 50 years.

Both paths would limit the other consequences of high and rising federal debt that were discussed above,

Figure 6-2.

Output per Person and Debt Under CBO's Extended Baseline and Illustrative Budgetary Paths



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

Gross national product differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The estimates of federal debt held by the public include macroeconomic feedback.

This figure displays only long-term effects. Results over the next few years are discussed later in this chapter.

compared with what is projected under the extended baseline. Although both paths would result in debt that was high by historical standards, the policy changes that would be needed to reduce deficits to a particular level, the constraints on policymakers, and the risk of a fiscal crisis would be smaller under those paths than they would be under the extended baseline, in which the debt-to-GDP ratio is projected to increase substantially.

Long-Term Effects of the Illustrative Path With Larger Deficits

For comparison with the estimated outcomes under the paths with smaller deficits, CBO analyzed the effects of a third illustrative path that would gradually increase deficits through unspecified decreases in tax revenues or increases in spending. Compared with the extended baseline, increased deficits and debt under that path would reduce output and increase the ratio of federal debt to GDP in the long term.

Table 6-2.

Long-Term Deficits and Debt Under CBO's Extended Baseline and Illustrative Budgetary Paths

Percentage of Gross Domestic Product

	2026	2046
	Deficit (-) or Surplus, Excluding Interest Payments	
Extended Baseline	-1.8	-3
Illustrative Path With 10-Year Deficit Reduced by $2 Trillion	-0.4	-1
Illustrative Path With 10-Year Deficit Reduced by $4 Trillion	1.0	*
Illustrative Path With 10-Year Deficit Increased by $2 Trillion	-3.2	-5
	Total Deficit (-) or Surplus	
Extended Baseline	-4.9	-9
Illustrative Path With 10-Year Deficit Reduced by $2 Trillion	-3.1	-5
Illustrative Path With 10-Year Deficit Reduced by $4 Trillion	-1.4	-2
Illustrative Path With 10-Year Deficit Increased by $2 Trillion	-6.6	-13
	Federal Debt Held by the Public	
Extended Baseline	86	141
Illustrative Path With 10-Year Deficit Reduced by $2 Trillion	76	96
Illustrative Path With 10-Year Deficit Reduced by $4 Trillion	67	55
Illustrative Path With 10-Year Deficit Increased by $2 Trillion	95	193

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

The estimates of deficits, surpluses, and debt include macroeconomic feedback.

* = between zero and 0.5 percent.

Deficits

Under the third path, cumulative deficits between 2017 and 2026 would exceed the deficit under the extended baseline by $2 trillion—that is, by the amount deficits would be reduced under the first illustrative path examined above. CBO assumed that the path would increase deficits steadily over the next decade in relation to what they would be under the extended baseline. In 2026, the deficit, excluding interest payments, would be $360 billion, or about 1.3 percent of GDP, larger than the amount under the extended baseline before macroeconomic feedback is taken into account. After 2026, the increase in such deficits in relation to the extended baseline would continue at the same percentage of GDP as in 2026.

Output and Interest Rates

The third path's higher deficits and debt would crowd out private investment, thereby causing output to be lower in the long term than under the extended baseline. With those macroeconomic effects incorporated, real GNP would be lower than it would be under the extended baseline by 0.5 percent in 2026 and 3 percent in 2046, CBO estimates (see Table 6-1 on page 68). Using the likely ranges for key variables, the agency estimates that real GNP would be between 0.3 percent and 0.8 percent lower in 2026, and between 1 percent and 6 percent lower in 2046 than under the extended baseline. However, even with the negative impact of higher debt, CBO projects that real GNP per person would be considerably higher in 2046 than in 2016 because of continued growth in productivity (see Figure 6-2 on page 69). As a result of higher federal debt, the interest rate on 10-year Treasury securities would be about half a percentage point higher than under the extended baseline, according to CBO's central estimate.

Budgetary Outcomes

Under the third path, budgetary outcomes would be worsened by the economic changes that resulted from the path's higher deficits and debt. With the effects of lower

output and higher interest rates incorporated, federal debt held by the public under the path would reach 193 percent of GDP in 2046, CBO estimates (see Figure 6-2 on page 69 and Table 6-2 on page 70); it is projected to be 141 percent under the extended baseline. Thus, debt would be much higher and would rise much more rapidly than under the extended baseline.

In addition to its effects on output, income, and interest rates, the third path would also bring about many of the other consequences associated with high and rising federal debt that are discussed above; those effects would be especially acute under this path because the debt would be so high and rise so rapidly. Such a path would necessitate much larger policy changes to reduce deficits to a particular level than the first two paths would. In addition, it would impose considerable constraints on policymakers and significantly raise the risk of a fiscal crisis.

Short-Term Economic Effects of the Illustrative Paths

The budgetary paths whose long-term macroeconomic effects have been analyzed in this chapter would have short-term effects as well. In the short term, policies that increased deficits would boost the overall demand for goods and services, thereby raising output and employment above what they would be otherwise. Similarly, policies that decreased deficits would reduce overall demand, thereby lowering output and employment. In CBO's assessment, those effects are stronger when short-term interest rates are near zero and output is below its potential (maximum sustainable) level, in part because under those conditions the Federal Reserve is unlikely to adjust short-term interest rates to try to offset the effects of changes in deficits.

Effects of the Paths With Smaller Deficits

Under the two illustrative paths that would reduce deficits, real GDP would be lower over the next few years than is projected under current law, CBO estimates. Because the agency did not specify the fiscal policies underlying those paths, the estimated macroeconomic effects arise solely from the effect on aggregate demand of differences in overall deficits.[10]

In the first path, which would lower deficits by $2 trillion, the reductions in the deficit (excluding interest payments) would amount to $40 billion in 2017 and $76 billion in 2018 before macroeconomic feedback is taken into account. In the second path, which would lower deficits by $4 trillion, those reductions would be $80 billion in 2017 and $151 billion in 2018. CBO estimates that both paths would reduce overall demand for goods and services, thereby lowering output in the short term. Under the first path, real GDP in 2017 would be 0.1 percent lower than it is projected to be under current law (or it would be equal to or as much as 0.2 percent lower than what it is projected to be under current law, according to CBO's ranges of likely values for key variables; see Table 6-3). In 2018, real GDP would again be 0.1 percent lower (or it would be equal to or as much as 0.3 percent lower than under current law, according to CBO's ranges of likely values). Under the second path, real GDP would be 0.3 percent lower than it is projected to be under current law in both 2017 and 2018 (or between 0.1 percent and 0.5 percent lower in 2017 and equal to or as much as 0.5 percent lower in 2018 than what would occur under current law, according to CBO's ranges of likely values). The paths would most likely continue to reduce real GDP below what it would be under current law for a few years after 2018, but CBO has not estimated the effects for those years.

Because businesses would produce less, they would hire fewer workers. According to CBO's central estimates, the number of full-time-equivalent employees under the first path would be 0.2 and 0.3 million smaller in 2017 and 2018, respectively, than under current law; under the second path, there would be 0.4 million fewer full-time-equivalent employees in 2017 and 0.5 million fewer in 2018 than under current law.[11]

10. CBO assumed that—when short-term interest rates were at or very near zero and monetary policy was thought to be constrained—each one-dollar change in budget deficits (excluding interest payments) relative to those under current law would change output cumulatively by one dollar over several quarters. That effect is estimated to be smaller when short-term interest rates are higher and monetary policymakers have more flexibility in responding to reductions in aggregate demand. For a similar approach, see Congressional Budget Office, *Budgetary and Economic Outcomes Under Paths for Federal Revenues and Noninterest Spending Specified by Chairman Price, March 2016 (March 2016)*, www.cbo.gov/publication/51260.

11. A year of full-time-equivalent employment is equal to 40 hours of employment per week for one year.

Table 6-3.

Short-Term Effects on Output and Employment Under CBO's Illustrative Budgetary Paths

	Inflation-Adjusted GDP (Percentage difference from level in the extended baseline)		Full-Time-Equivalent Employment[a] (Difference in millions from level in the extended baseline)	
	2017	2018	2017	2018
Illustrative Path With 10-Year Deficit Reduced by $2 Trillion				
Central estimate	-0.1	-0.1	-0.2	-0.3
Range	-0.2 to 0	-0.3 to 0	-0.4 to -0.1	-0.4 to -0.1
Illustrative Path With 10-Year Deficit Reduced by $4 Trillion				
Central estimate	-0.3	-0.3	-0.4	-0.5
Range	-0.5 to -0.1	-0.5 to 0	-0.7 to -0.1	-0.9 to -0.1
Illustrative Path With 10-Year Deficit Increased by $2 Trillion				
Central estimate	0.1	0.1	0.2	0.3
Range	0 to 0.2	0 to 0.3	0.1 to 0.4	0.1 to 0.4

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2026 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The $2 trillion and $4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO's baseline between 2017 and 2026, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

The central estimates and ranges reflect alternative assessments of three factors: how much changes in overall demand affect output in the short term; how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving is being used to purchase government securities); and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

GDP = gross domestic product.

a. Full-time-equivalent employment is calculated by dividing the total number of hours gained or lost during a year by 2,080, the annual number of hours worked by a full-time employee.

Effects of the Path With Larger Deficits

Under the illustrative path that would increase deficits, real GDP would be higher in the next few years than is projected under current law, CBO estimates. That path would boost deficits (excluding interest payments) by $40 billion in 2017 and by $76 billion in 2018 before macroeconomic feedback is taken into account—that is, by the same amounts the path with $2 trillion of deficit reduction would shrink them in those years. The resulting boost in overall demand would increase real GDP above what is projected under current law by 0.1 percent in both 2017 and 2018, CBO estimates. According to the agency's ranges of likely values for key variables, real GDP would probably be equal to or as much as 0.2 percent higher in 2017 and up to 0.3 percent higher in 2018 than what is projected under current law.

To produce that additional amount, businesses would hire more workers. As a result, the number of full-time-equivalent employees would be greater than is projected under current law by 0.2 million in 2017 and by 0.3 million in 2018, CBO estimates.

Box 6-1.

Long-Term Effects of Limiting Social Security Benefits to Amounts Payable From Dedicated Funding

The Congressional Budget Office projects that, without legislative action, the worsening shortfall in the Social Security program's finances would cause the program's combined trust funds to be exhausted in calendar year 2029 (see Chapter 2).[1] After exhaustion, trust fund balances would no longer be available to make up the gap between benefits specified in current law and annual trust fund receipts. The manner in which that situation was resolved would have important implications for the federal budget. CBO's extended baseline incorporates one set of assumptions about that resolution, and the agency also analyzed a scenario incorporating an alternative set.

The extended baseline reflects the assumption that the Social Security Administration will pay benefits as scheduled under current law regardless of the status of the program's trust funds—an assumption that is consistent with a statutory requirement that CBO, in its 10-year baseline projections, assume that funding for entitlement programs is adequate to make all payments required by law.[2] However, if the trust funds' balance declined to zero and current revenues were insufficient to cover benefits specified in law, the Social Security Administration would no longer be permitted to pay beneficiaries the full amounts to which they were entitled when payments were due because other laws prohibit officials from making expenditures in excess of available funds. The potential conflict would have to be resolved by the Congress or in the courts.[3]

If benefits were limited to the amounts payable from dedicated funding, benefits would be reduced by 29 percent in 2030 and by greater percentages in later years in relation to the amounts in CBO's extended baseline. Although it is unclear how much the specific amounts for beneficiaries would be reduced under that scenario, this analysis incorporates the assumption that each recipient's annual benefit would be reduced by the percentage necessary for outlays to match revenues in each year after the trust funds were exhausted.

In CBO's assessment, the reduction in benefits would lower deficits (including debt service) by 1 percent of gross domestic product (GDP) in 2030 and by a much larger 4 percent of GDP in 2046. (In CBO's extended baseline, the projected deficit in 2046 is 9 percent of GDP.)

The reduction in benefits would cause some affected workers to choose to remain in the labor force longer than they would have otherwise, which would increase the supply of labor and thus the economy's output in the long term. Lower deficits and debt would also lead to higher output and lower interest rates than what CBO projects in the extended baseline. With payable benefits, gross national product in 2046 would be 3 percent higher and interest rates 0.4 percentage points lower than under the extended baseline, CBO estimates.

The higher output and lower interest rates would improve budgetary outcomes. With those macroeconomic effects incorporated into its analysis, CBO estimates that the ratio of federal debt held by the public to GDP in 2046 would stand at 101 percent, which is 40 percentage points lower than under the extended baseline. The other consequences of high and rising debt would also be diminished: The policy changes necessary to reduce deficits to a particular level, the constraints on policymakers, and the risk of a fiscal crisis would be smaller than under the extended baseline.

CBO's estimates of the macroeconomic and budgetary outcomes with payable benefits are based on the assumption that people would not change their decisions regarding consumption, saving, and work in anticipation of lower Social Security benefits. In CBO's assessment, if people responded to the prospect of lower benefits, they would increase their saving by cutting consumption and working more, both of which would help reduce the impact that lower future benefits would have on their future income and consumption. That increase in saving and in the labor supply would boost the capital stock and GDP, thereby raising taxable income and revenues and further lowering deficits. As a result, the ratio of federal debt held by the public to GDP in 2046 would probably be less than 101 percent, the amount CBO estimates that ratio would be if people did not change their consumption, saving, or work decisions in anticipation of lower Social Security benefits.

1. Although the two trust funds are legally separate, in this report, CBO follows the common analytical convention of considering them to be combined. For a detailed discussion of various Social Security policy options, see Congressional Budget Office, *Social Security Policy Options, 2015* (December 2015), www.cbo.gov/publication/51011.

2. See sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

3. Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 2014), available from the U.S House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, "Social Security Congressional Research Service Reports" (accessed July 8, 2016), http://go.usa.gov/cCXcG.