The Accuracy of CBO's Budget Projections for Fiscal Year 2020

After each fiscal year has ended, the Congressional Budget Office reviews its projections of federal revenues, outlays, and deficits and compares them with actual budgetary outcomes for that year.[1] By assessing the quality of its projections and identifying the factors that might have led to under- or overestimates of particular categories of federal revenues and outlays, CBO seeks to improve the accuracy of its work.

To review its projections for fiscal year 2020, CBO started with its May 2019 baseline projections and updated them to include the estimated effects of subsequently enacted legislation. The adjustments were particularly large for 2020 because of legislation enacted in response to the 2020 coronavirus pandemic.[2] In total, those adjustments—which reflect the estimated budgetary effects reported in cost estimates that CBO and the staff of the Joint Committee on Taxation (JCT) prepared when the legislation was enacted—reduced CBO's projections of revenue by $0.6 trillion and increased its projections of outlays by $1.8 trillion.[3] CBO also removed outlays for Fannie Mae and Freddie Mac from both its projections and the actual outcomes because CBO and the Administration account for the transactions of those housing entities differently.[4]

With those adjustments, the overall differences were as follows (see Table 1):

- **Revenues.** CBO's projection of $3.11 trillion for federal revenues in 2020 was too low—by $312 billion, or 9 percent. That difference was larger than the mean absolute error of about 5 percent in revenue projections made for the years from 1983 to 2019.[5]

---

1. For last year's edition of this report, see Congressional Budget Office, *The Accuracy of CBO's Baseline Estimates for Fiscal Year 2019* (December 2019), www.cbo.gov/publication/55927.

2. Those laws include the Coronavirus Preparedness and Response Supplemental Appropriations Act, the Families First Coronavirus Response Act, the Coronavirus Aid, Relief, and Economic Security Act, and the Paycheck Protection Program and Health Care Enhancement Act.

3. In its September baseline, CBO adjusted its estimates of the effects of legislation on certain programs by increasing outlays in 2020 by $132 billion, on net. For more information on those revisions, see Congressional Budget Office, *An Update*

to the Budget Outlook: 2020 to 2030 (September 2020), www.cbo.gov/publication/56517. The estimated effects on outlays for 2020 may be further revised when CBO updates its evaluation of outlay projections. For an earlier report, see Congressional Budget Office, *An Evaluation of CBO's Past Outlay Projections* (November 2017), www.cbo.gov/publication/53328.

4. For more information about the differences, see Congressional Budget Office, *Accounting for Fannie Mae and Freddie Mac in the Federal Budget* (September 2018), www.cbo.gov/publication/54475.

5. The mean absolute error is the arithmetic average of the projection errors without regard to whether they are positive or negative, so errors in different directions do not offset one another. CBO calculated projection errors by subtracting the actual amount of outlays or revenues from the projection and dividing that difference by the actual outlay or revenue amount. The mean absolute error in the deficit projections was expressed as a percentage of gross domestic product rather than as a percentage calculated from dollar values in order to account for years in which the actual deficit or surplus was small, causing relatively small projection errors (in dollar terms) to result in large percentage errors.

Notes: Unless this report indicates otherwise, all years referred to are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end. Numbers in the text and tables may not add up to totals because of rounding.

Table 1.

CBO's Budget Projections for 2020, Compared With Actual Outcomes

Billions of Dollars

	May 2019 Baseline Projections[a]	Adjustments for Enacted Legislation[a]	May 2019 Projections, Updated for Enacted Legislation[a]	2020 Actual[a]	Difference	Percentage Difference[b]	Mean Absolute Error of Past Budget-Year Projections[c]
Revenues							
Individual income taxes	1,833	-478	1,354	1,609	-254	-15.8	7.0
Payroll taxes	1,280	3	1,283	1,310	-27	-2.0	2.5
Corporate income taxes	274	-89	185	212	-26	-12.5	17.5
Other	294	-9	285	289	-5	-1.6	5.8
Total	**3,681**	**-573**	**3,108**	**3,420**	**-312**	**-9.1**	**4.9**
Outlays							
Mandatory							
Social Security	1,099	0	1,099	1,090	9	0.8	0.8
Medicare[d]	671	11	682	769	-87	-11.3	3.0
Medicaid	418	33	451	458	-7	-1.6	4.1
Other	635	1,416	2,051	2,266	-216	-9.5	8.0
Subtotal	2,823	1,459	4,283	4,584	-301	-6.6	2.7
Discretionary							
Defense	648	61	710	714	-4	-0.6	1.5
Nondefense	644	260	904	914	-10	-1.1	2.7
Subtotal	1,292	321	1,614	1,628	-14	-0.9	1.5
Net Interest[e]	455	3	457	345	113	32.7	7.8
Total	**4,571**	**1,783**	**6,354**	**6,556**	**-202**	**-3.1**	**2.2**
Deficit	**-890**	**-2,356**	**-3,246**	**-3,136**	**-110**	**3.5**	**n.a.[f]**

Data sources: Congressional Budget Office; Department of the Treasury.

The budget projections presented here are based on CBO's May 2019 baseline; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the budgetary effects of subsequent legislation as estimated at the time of enactment. For discretionary spending, the amounts reflect estimated outlays stemming from full-year appropriations provided for 2020. Those projections are generally consistent with the technical assumptions (for example, how quickly appropriations will be spent) and economic projections underlying the May 2019 baseline. In addition, the discretionary spending amounts include outlays estimated for 2020 from supplemental appropriations made in 2019 and 2020. Many of those estimates incorporated updated technical and economic assumptions.

n.a. = not available.

a. Outlays related to the activities of Fannie Mae and Freddie Mac (which are classified as mandatory) are excluded from this table; the 2020 budget recorded $4.2 billion in offsetting receipts (that is, negative outlays) for those activities. Including those outlays, the 2020 budget deficit, as reported by the Department of Treasury, totaled $3,132 billion.

b. The percentage difference is the projected amount minus the actual amount divided by the actual amount.

c. The mean absolute error is the arithmetic average of the projection errors without regard to whether they are positive or negative, so errors in different directions do not offset one another. CBO calculated projection errors by subtracting the actual amount of outlays or revenues from the projection and dividing that difference by the actual outlay or revenue amount. The budget year is the second year of the period covered by CBO's baseline projections; it usually begins several months after a spring baseline is released. The mean absolute errors for revenues are based on budget-year projections for 1983 to 2019; those for defense and nondefense discretionary spending are based on budget-year projections for 1999 to 2019; and those for all other spending categories are based on budget-year projections for 1993 to 2019. The data necessary to calculate the projection errors in earlier years are not available. For more information, see Congressional Budget Office, *An Evaluation of CBO's Past Revenue Projections* (August 2020), www.cbo.gov/publication/56499, and *An Evaluation of CBO's Past Outlay Projections* (November 2017), www.cbo.gov/publication/53328.

d. Includes the effects of Medicare premiums and other offsetting receipts.

e. Includes the estimated effects on debt service of enacted legislation.

f. In Congressional Budget Office, *An Evaluation of CBO's Past Deficit and Debt Projections* (September 2019), www.cbo.gov/publication/55234, the mean absolute deficit error was expressed as a percentage of gross domestic product (GDP) rather than as a percentage calculated from dollar values in order to account for years in which the actual deficit or surplus was small, causing relatively small projection errors (in dollar terms) to result in large percentage errors. In that analysis, CBO found that the mean absolute error in budget-year deficit projections made between 1985 and 2019 was 1.0 percent of GDP. By comparison, the deficit error in 2020 equaled 0.5 percent of GDP.

- **Outlays.** CBO's projection of $6.35 trillion for federal outlays in 2020 was too low—by $202 billion, or 3 percent. That difference was likewise larger than the mean absolute error of about 2 percent in outlay projections made for the years from 1993 to 2019.

- **Deficit.** Those differences in revenue and outlay projections resulted in a deficit projection for 2020 that was $110 billion more than the actual amount: $3.25 trillion rather than $3.14 trillion.[6] That difference was equal to 0.5 percent of gross domestic product (GDP). By comparison, the mean absolute error in deficit projections reported for 1985 to 2019 equaled 1.0 percent of GDP.

How CBO Conducted This Analysis

CBO regularly publishes baseline projections of federal revenues, outlays, and deficits for the current fiscal year and the ensuing decade. Those projections reflect the assumption that current laws governing taxes and spending will generally remain unchanged.

This analysis focuses on the projections for 2020 in CBO's May 2019 baseline because, in most years, CBO typically uses the technical assessments (such as how quickly appropriations would be spent) and economic projections underlying its spring baseline from the prior year to produce cost estimates for legislation affecting the budget year and beyond.[7] (The budget year is the second year of the period covered by CBO's baseline projections; it usually begins several months after a spring baseline is released.) This year, the rapidly evolving effects of the pandemic on the economy caused CBO to use updated projections of certain factors (such as the unemployment rate) when producing cost estimates for some of that legislation.

---

6. Removing outlays for Fannie Mae and Freddie Mac reduced projected outlays by $1.5 billion and increased actual outlays by $4.2 billion. Without that adjustment, the 2020 deficit, as reported by the Treasury, totaled $3.13 trillion.

7. For a more detailed discussion of CBO's May 2019 projections, see Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For more detailed discussions of the quality of CBO's projections, see Congressional Budget Office, *An Evaluation of CBO's Past Revenue Projections* (August 2020), www.cbo.gov/publication/56499, *An Evaluation of CBO's Past Deficit and Debt Projections* (September 2019), www.cbo.gov/publication/55234, and *An Evaluation of CBO's Past Outlay Projections* (November 2017), www.cbo.gov/publication/53328.

Any comparison of CBO's projections with actual outcomes is complicated by legislation that was enacted after the projections were completed. CBO does not attempt to predict future legislative changes or their effects on revenues and outlays when it prepares its baseline budget projections, but actual revenues and outlays invariably differ from CBO's estimates as a result of such changes.

To account for those changes, CBO updated its projections to incorporate the estimated effects of subsequent legislation. Those amounts reflect the estimated budgetary effects reported in the cost estimates that CBO and the staff of JCT prepared when the legislation was enacted. Adjusting projections to reflect the cost estimates provided to the Congress allows CBO to evaluate the quality of information provided to lawmakers for scorekeeping purposes. It is those same adjustments that the Congress generally incorporates when updating the baseline it uses for enforcement of budgetary rules during the year as legislation is enacted. As a result, this report examines information about 2020 that CBO provided to the Congress from May 2019 through the end of 2020, not only the accuracy of the initial baseline projections.

Any errors in the initial cost estimates are included in the differences discussed in this report. In particular, the ongoing public health emergency has continued to affect many of the factors underlying CBO's original cost estimates for legislation enacted in response to the pandemic, causing the errors for a number of programs to be larger in 2020 than their historical average. The increase that CBO made in its projections of outlays also includes the estimated increase in spending for interest on the federal debt that resulted from enacted legislation, although the effects of that increase were not included in the cost estimates.

How CBO's Projections for 2020 Compare With Actual Outcomes

In its updated May 2019 baseline projections, which include the estimated budgetary effects reported in its cost estimates for subsequent legislation, CBO overestimated the federal deficit in 2020—the result of underestimating both revenues and outlays.

Revenues

CBO's projection of revenues in 2020 was $3,108 billion, about $312 billion (or 9 percent) less than the actual amount (see Table 2). CBO underestimated individual and corporate income tax receipts and remittances

Table 2.

CBO's Projections of Revenues for 2020, Compared With Actual Revenues

Billions of Dollars

	May 2019 Projections, Updated for Enacted Legislation	2020 Actual	Difference	Percentage Difference[a]
Individual Income Taxes	1,354	1,609	-254	-15.8
Payroll Taxes	1,283	1,310	-27	-2.0
Corporate Income Taxes	185	212	-26	-12.5
Other Receipts				
Excise taxes	99	87	12	13.5
Estate and gift taxes	18	18	*	1.4
Customs duties	79	69	10	15.3
Federal Reserve	47	82	-35	-42.6
Miscellaneous receipts	43	35	8	22.7
Subtotal	285	289	-5	-1.6
Total	**3,108**	**3,420**	**-312**	**-9.1**

Data sources: Congressional Budget Office; Department of the Treasury.

The budget projections presented here are based on CBO's May 2019 baseline; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the budgetary effects of subsequent legislation as estimated at the time of enactment.

* = between zero and $500 million.

a. The percentage difference is the projected amount minus the actual amount divided by the actual amount.

from the Federal Reserve. CBO also underestimated payroll taxes; however, the amounts recorded by the Treasury for that source were based on estimates made near the beginning of the year.

Typically, income and payroll tax revenue projections made before an economic downturn overstate actual revenues because they do not account for the unanticipated declines in taxable income that accompany recessions. CBO's underestimate of revenues from those sources suggests that the actual revenue reductions in 2020 resulting from legislation enacted in response to the pandemic were smaller than initially expected. Those misestimates, in turn, may suggest either lower overall usage of the new provisions or simply a delay in the occurrence of the budgetary effects. Much of the budgetary effect from recent legislation estimated for 2020 stemmed from provisions allowing for a deferral of taxes that would have to be paid in future years. Consequently, overestimates of the revenue reductions in 2020 stemming from those deferrals will probably be followed by less revenues in subsequent years than CBO anticipated at the time. The factors influencing those underestimates in 2020 will be better understood as detailed tax data become available over the next two years.

Individual Income Taxes. CBO's projection of receipts from individual income taxes in 2020 was $1,354 billion, about $254 billion (or 16 percent) less than the actual amount of $1,609 billion. CBO underestimated those receipts even though actual wages and other taxable income for 2020 were lower than CBO anticipated in May 2019. That underestimate in receipts is probably attributable, in part, to misestimates of the magnitude or timing of effects of major legislation enacted in response to the coronavirus pandemic.

On the basis of estimates made at the time of enactment, CBO and the staff of JCT expected the various pieces of legislation enacted between May 2019 and September 2020 to reduce individual income tax receipts in 2020 by a total of $478 billion (see Table 1 on page 2). Those estimated effects stemmed from provisions of two laws: the Families First Coronavirus Response Act, which created tax credits for employers required by that law to provide emergency paid sick leave and emergency paid family and medical leave; and the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), which provided for deferral of payments of some payroll taxes, created tax credits for employee retention, and relaxed the limitation on the amount of business losses

that can be used to offset tax liability. Although some of those laws' provisions affect payroll taxes, the Treasury is recording such effects in the budget—at least initially—as individual income tax reductions. (For an explanation, see the section below on payroll taxes.) The estimates of the effects of legislation generally do not include the effects on revenues that result from spending provisions. For example, higher outlays for expanded unemployment compensation are expected to result in higher tax withholding.

The amount of taxes withheld from paychecks and the amount remitted as quarterly estimated payments over the past several months have been greater than expected, given the estimated declines in wage and nonwage income and the initial estimates of the reductions in revenues that would result from recently enacted tax provisions. With the data that are currently available, it is not possible to determine the extent to which each provision is contributing to the discrepancy, or whether the discrepancies reflect differences in the overall budget effect or only in the timing of the effects. However, initial evidence from survey data from the Census Bureau and corporate financial disclosures suggests that a smaller share of businesses have opted to defer the employer share of payroll taxes than was originally anticipated.

Payroll Taxes. CBO's projection of payroll tax receipts for 2020 was $1,283 billion, $27 billion (or 2 percent) less than the actual amount of $1,310 billion for 2020. That underestimate largely reflects differences between CBO's expectations for wage and salary growth in 2020 and estimates made by the Treasury early in the fiscal year. Payroll tax receipts recorded by the Treasury for 2020 do not reflect the actual wages and salaries earned during the entire fiscal year, nor do they reflect the effects of legislation enacted in response to the coronavirus pandemic, including the option for most employers to defer payment of their portion of certain payroll taxes.

When the Treasury receives payments of withheld taxes, it cannot differentiate between payments for payroll taxes and withheld individual income taxes. As a result, it allocates payments made first to payroll taxes on the basis of estimates made in advance of actual collections. The remaining payments are then allocated to withheld individual income taxes. As additional information becomes available, including detailed tax return information, the Treasury makes periodic reallocations to revise past allocations. The amounts recorded by the Treasury as payroll taxes for 2020 were largely determined before the onset

of the pandemic, and the effects of subsequent declines in wages and enacted legislation were recorded as lower individual income tax receipts in 2020.

Corporate Income Taxes. CBO's projection of receipts for corporate income taxes in 2020 was $185 billion, $26 billion (or 12 percent) less than the actual amount of $212 billion. The unexpected strength in corporate income tax receipts in 2020 cannot be explained by the currently available data published by the Bureau of Economic Analysis (BEA). In particular, estimates of domestic corporate profits published by BEA for 2019 and 2020 are lower than CBO projected in May 2019.

The stronger-than-expected receipts may result, in part, from differences in the timing or magnitude of the effects of recently enacted legislation from what was anticipated at the time of enactment. Most significantly, the CARES Act provided for expanded use of net operating losses, allowing corporations to use past losses from 2018 and 2019 to offset prior tax liability, which was expected to reduce corporate tax receipts by over $70 billion. However, collections through the end of fiscal year 2020 did not reflect the increased volume of additional refunds that was anticipated as a result of that legislation. The lower-than-anticipated refunds in 2020 may suggest either less usage of the provision by corporate taxpayers or a delay in the budgetary effects.

Other Sources. CBO's projection of receipts from all other sources in 2020 was $285 billion, $5 billion (or about 2 percent) less than the actual amount of $289 billion in 2020. That underestimate reflects larger remittances from the Federal Reserve, which were partially offset by lower miscellaneous receipts, customs duties, and excise taxes.

Specifically, remittances from the Federal Reserve in CBO's projection for 2020 were $35 billion (or 43 percent) below actual values for 2020. That underestimate is largely attributable to the effects of the actions taken by the central bank to address the economic disruption stemming from the pandemic. In particular, the Federal Reserve significantly increased its asset holdings in 2020, which generated additional interest income and increased remittances in 2020.

CBO's projection of other miscellaneous receipts overestimated the actual amount by $8 billion (or 23 percent). That overestimate is most likely related to a

penalty that some employers had to pay if they had at least 50 full-time-equivalent employees and did not offer health insurance coverage that met certain standards. Collections of those penalties have been much smaller than CBO anticipated for the past several years, and the agency revised those projections downward in its January 2020 baseline.

Customs duties were overestimated by $10 billion (or 15 percent), largely because of fewer imports and the economic disruption caused by the pandemic. Imports during 2020 were significantly less than CBO had anticipated, reducing the value of goods subject to tariffs. Additionally, the Administration reduced tariffs on a range of imports in response to the pandemic.

CBO overestimated excise taxes for 2020 by $12 billion (or 14 percent). That overestimate is attributable to the unanticipated declines in economic activity that resulted from the pandemic. Most significantly, declines in taxable fuel consumption reduced collections of excise taxes dedicated to the Highway Trust Fund.

Outlays
In its baseline projections, CBO divides federal outlays into three broad categories—mandatory, discretionary, and net interest.[8] (Because the Treasury does not report totals for those categories, CBO has estimated how the Office of Management and Budget will ultimately categorize outlays for 2020.) Including the estimated effects of legislation, CBO's updated May 2019 projection of outlays in 2020 was $6,354 billion, $202 billion (or 3 percent) less than the actual amount. CBO underestimated mandatory and discretionary outlays but overestimated net interest costs.

Mandatory Outlays. CBO's projection of mandatory outlays in 2020 was $4,283 billion, $301 billion (or about 7 percent) less than the actual amount of $4,584 billion (see Table 3). Estimates of spending on programs affected by legislation enacted in response to

---

8.   Mandatory spending consists of outlays for some federal benefit programs, such as Social Security, Medicare, and Medicaid, and certain other payments to people, businesses, nonprofit institutions, and state and local governments. It is governed by statutory criteria and is not normally controlled by the annual appropriation process. Discretionary spending is controlled by appropriation acts that specify the amounts that are to be provided for a broad array of government activities, including, for example, defense, law enforcement, and transportation. Net outlays for interest consist of the government's interest payments on debt held by the public minus interest income that the government receives.

the coronavirus pandemic and accounting adjustments related to certain loans and loan guarantees made in previous years accounted for the largest differences.

Income Security. CBO's projection of outlays in 2020 for income security programs—which make payments to certain people and government entities to assist the poor, the unemployed, and others in need—was lower, on net, than the actual amount by $250 billion (or 24 percent). The largest difference was in CBO's projection of outlays for unemployment compensation; that projection was too low by $225 billion (or 48 percent). About $125 billion of that underestimate was from new unemployment benefits enacted in response to the pandemic. In particular, in its original estimate of the legislation's effects CBO underestimated the number of people who would receive Pandemic Unemployment Assistance, which provides benefits to people who cannot work because of the pandemic but are not eligible for regular unemployment insurance benefits.[9]

In addition, CBO's projection of outlays for regular unemployment and extended benefits was too low by $100 billion, primarily because the unemployment rate during the second half of 2020 was significantly higher than CBO had estimated in May 2019. For example, in the economic forecast underlying the agency's May 2019 baseline, CBO projected that the unemployment rate would not exceed 3.7 percent in any quarter of fiscal year 2020. But that rate averaged 13.0 percent in the third quarter of fiscal year 2020 and 8.8 percent in the final quarter of the fiscal year.

Small Business Administration Loans and Guarantees. CBO's projection of mandatory outlays in 2020 for the Small Business Administration was higher than the actual amount by $155 billion (or 28 percent). Nearly all of that difference resulted from CBO's projection of outlays for the Paycheck Protection Program. Demand for those loans was weaker than CBO had anticipated when the legislation creating the program was enacted.[10]

Medicare. CBO underestimated Medicare outlays by $87 billion (or 11 percent) in 2020. Most of that

---

9.   When CBO incorporated the effects of legislation into its September 2020 baseline projections, the agency increased its estimate of outlays related to the expansion of unemployment compensation in 2020 by $151 billion.

10.   When CBO incorporated legislative changes into its September 2020 baseline projections, the agency reduced the costs of its original estimate for the Paycheck Protection Program by $130 billion.

Table 3.

CBO's Projections of Mandatory Outlays for 2020, Compared With Actual Outlays

Billions of Dollars

	May 2019 Projections, Updated for Enacted Legislation[a]	2020 Actual[a]	Difference	Percentage Difference[b]
Social Security	1,099	1,090	9	0.8
Major Health Care Programs				
Medicare[c]	682	769	-87	-11.3
Medicaid	451	458	-7	-1.6
Health insurance subsidies and related spending	54	57	-3	-5.7
Children's Health Insurance Program	17	17	*	2.2
Subtotal	1,205	1,302	-97	-7.4
Income Security Programs	802	1,052	-250	-23.8
Federal Civilian and Military Retirement	177	171	6	3.4
Veterans' Programs[d]	123	124	-1	-1.0
Small Business Administration	707	552	155	28.1
Credit Subsidy Reestimates	0	51	-51	n.a.
Higher Education[d]	12	55	-43	-78.7
Other[d]	158	187	-28	-15.2
Subtotal	1,979	2,192	-213	-9.7
Total Mandatory Outlays	**4,283**	**4,584**	**-301**	**-6.6**

Data sources: Congressional Budget Office; Department of the Treasury.

The budget projections presented here are based on CBO's May 2019 baseline; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the budgetary effects of subsequent legislation as estimated at the time of enactment.

n.a. = not applicable; * = between zero and $500 million.

a. Outlays related to the activities of Fannie Mae and Freddie Mac (which are classified as mandatory) are excluded from this table.

b. The percentage difference is the projected amount minus the actual amount divided by the actual amount.

c. Includes the effects of Medicare premiums and other offsetting receipts.

d. Excludes the effects of updated estimates by federal agencies of the subsidy costs of certain federal loans and loan guarantees made in previous years. Those effects are reflected in the "Credit Subsidy Reestimates" line.

difference stems from the net effect of two changes related to the pandemic. First, under legislation enacted in response to the ongoing public health emergency, Medicare made payments totaling roughly $107 billion to providers in 2020 in advance of expected health care claims, which CBO had not anticipated. Second, partially offsetting that increased spending, payments for beneficiaries in fee-for-service Medicare were less than projected because of decreased utilization associated with the pandemic.

Credit Subsidy Reestimates. Updated estimates by federal agencies of the subsidy costs of certain federal loans and loan guarantees made in previous years boosted actual

outlays, on net, by $51 billion in 2020.[11] That increase was the result of a $70 billion increase in the estimated costs of past student loans made by the Department of Education, partially offset by a decrease in estimated costs for other programs, the largest being a $14 billion reduction in the estimated costs of mortgage

11. Under the Federal Credit Reform Act of 1990, a program's subsidy costs are calculated by subtracting the present value of the government's projected receipts from the present value of its projected payments. The estimated subsidy costs can be increased or decreased in subsequent years to reflect updated assessments of the payments and receipts associated with the program. A present value is a single number that expresses a flow of current and future income (or payments) in terms of an equivalent lump sum received (or paid) at a specific time. The present value depends on the rate of interest (the discount rate) that is used to translate future cash flows into current dollars.

guarantees made by the Department of Housing and Urban Development in previous years. Those updated estimates were not available when CBO completed its May 2019 baseline projections, and CBO had no basis for determining what revisions, if any, would be made in 2020 or in future years. Therefore, the agency did not include any such revisions in its May 2019 projections. If not for those updates to costs recorded in previous years, CBO's projection of mandatory outlays in 2020 would have been too low by $24 billion (or 1 percent).

Higher Education. CBO's projection of spending for higher education in 2020 (excluding credit subsidy reestimates) was $43 billion below the actual amount. That difference was mostly the result of modifications to the costs of outstanding student loans recorded by the Department of Education as a result of the coronavirus pandemic, either through administrative actions by the department or enacted legislation.

Other Mandatory Programs. CBO's projection for the largest mandatory program, Social Security, was very close to actual amounts in 2020. The agency overestimated outlays by $9 billion (1 percent). CBO's projection for Medicaid was $7 billion (or 2 percent) below the actual amount. Projected outlays for all other mandatory programs—including health insurance subsidies and related spending, the Children's Health Insurance Program, federal civilian and military retirement, veterans' programs, and others—were too low by $26 billion (or 5 percent). The largest differences were for the Economic Stabilization Fund ($16 billion) and the Exchange Stabilization Fund ($12 billion).

Discretionary Outlays. To evaluate its projections of discretionary outlays, CBO updated the funding amounts projected in its May 2019 baseline to reflect the regular full-year appropriations provided for 2020 in appropriation bills, which were enacted in the first few months of the fiscal year. CBO generally applied the technical assessments (such as how quickly appropriations would be spent) and economic projections underlying its May 2019 baseline to those updated amounts of funding. For supplemental appropriations (which were primarily provided in response to the coronavirus pandemic), CBO used technical assessments and economic projections that reflected the agency's views around the time of enactment. After those adjustments were made, CBO's projection of discretionary outlays in 2020 was $1,614 billion, $14 billion (or 1 percent) less than the actual amount of $1,628 billion. CBO underestimated defense spending by $4 billion and nondefense spending by $10 billion.

CBO's projections of discretionary outlays for most agencies were within $5 billion of the actual amounts in 2020 (see Table 4). However, the small overall difference between CBO's projection of discretionary outlays and the actual amount was the result of errors that went in opposite directions. Nearly all of those differences were related to assessments of how quickly supplemental funding provided in response to the pandemic would be spent.

The largest underestimates were the following:

- The projection of spending by the Department of Health and Human Services was $28 billion (or 13 percent) less than the actual amount. The largest part of that difference was a $32 billion underestimate of outlays for the Public Health and Social Services Emergency Fund.

- The projection of spending by the Department of Homeland Security was $15 billion (or 16 percent) less than the actual amount. Most of that difference was the result of faster-than-expected spending from the Disaster Relief Fund, largely driven by an executive order issued in August 2020 that directed the Federal Emergency Management Agency to provide unemployment benefits from the fund's balances.

- The projection of spending by the Department of Transportation was $7 billion (or 7 percent) less than the actual amount.

In the other direction, CBO's projections exceeded actual amounts for some agencies. The largest such differences were the following:

- The projection of spending by the Small Business Administration exceeded the actual amount by about $27 billion (or 102 percent). Slower-than-anticipated lending under the Disaster Loan Program accounted for most of that difference. That program received a $50 billion appropriation to provide loans to small businesses to cover the costs of economic injuries suffered as a result of the pandemic.

- The projection of spending by the Department of Housing and Urban Development was $13 billion (or 28 percent) higher than the actual amount. About half of that difference was the result of slower-than-expected spending for the Community Development Block Grant program.

Table 4.

CBO's Projections of Discretionary Outlays for 2020, Compared With Actual Outlays

Billions of Dollars

	May 2019 Projections, Updated for Enacted Legislation	2020 Actual	Difference	Percentage Difference[a]
Department of Health and Human Services	182	211	-28	-13.4
Department of Homeland Security	79	94	-15	-15.8
Department of Transportation	93	101	-7	-7.1
Department of State	27	32	-5	-15.1
Department of Defense—Military	677	682	-4	-0.7
Department of Education	76	79	-3	-4.0
International Assistance Programs	23	25	-2	-6.3
Department of Veterans Affairs	96	97	-1	-1.4
Department of Labor	12	12	*	-1.6
Department of the Treasury	13	13	*	-1.3
Department of Justice	32	32	*	-0.1
Department of Agriculture	35	35	*	-0.4
Environmental Protection Agency	9	9	*	0.9
Social Security Administration	10	10	*	1.1
National Aeronautics and Space Administration	22	22	*	1.3
Corps of Engineers	9	8	1	7.5
Department of Commerce	15	14	1	7.4
Department of Interior	15	14	1	9.6
Department of Energy	36	35	1	4.2
Department of Housing and Urban Development	60	47	13	28.1
Small Business Administration	53	26	27	101.6
Other Agencies	38	31	7	22.7
Total	**1,614**	**1,628**	**-14**	**-0.9**

Data sources: Congressional Budget Office; Department of the Treasury.

The budget projections presented here are based on CBO's May 2019 baseline; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the budgetary effects of subsequent legislation as estimated at the time of enactment. The amounts reflect estimated outlays stemming from full-year appropriations provided for 2020. Those projections are generally consistent with technical assumptions (for example, how quickly appropriations will be spent) and economic projections underlying the May 2019 baseline. In addition, the discretionary spending amounts include outlays estimated for 2020 from supplemental appropriations made in 2019 and 2020. Many of those estimates incorporated updated technical and economic assumptions.

* = between -$500 million and $500 million.

a. The percentage difference is the projected amount minus the actual amount divided by the actual amount.

Net Interest. Net outlays for interest consist of the government's interest payments on debt held by the public minus interest income that the government receives. CBO's projection of those outlays in 2020 was $457 billion, $113 billion (or 33 percent) more than the actual amount of $345 billion (see Table 1 on page 2).

Most of the difference is attributable to economic factors. In particular, CBO overestimated interest rates for 2020. For example, in the economic forecast underlying the ag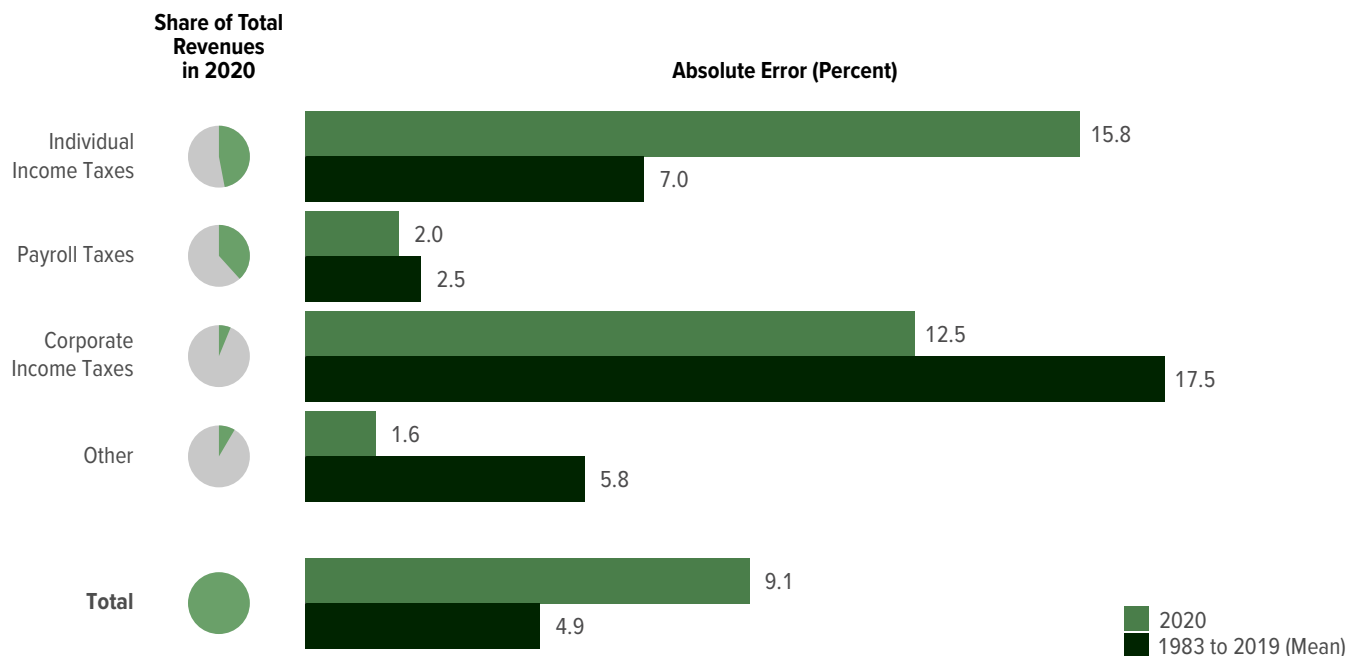ency's May 2019 baseline, CBO projected that between the end of fiscal year 2018 and the end of fiscal year 2020, the interest rate on 10-year Treasury notes would increase from 2.9 percent to 3.7 percent. But by the end of 2020, that rate had fallen to 0.7 percent.

How the Accuracy of CBO's Projections for 2020 Compares With the Accuracy of Its Past Budget Projections

The errors in CBO's projections of revenues and outlays in 2020 were larger than the mean absolute errors in the agency's projections for previous years. However, because

Figure 1.

Projection Errors for Revenues

Share of Total Revenues in 2020

Absolute Error (Percent)

	2020	1983 to 2019 (Mean)
Individual Income Taxes	15.8	7.0
Payroll Taxes	2.0	2.5
Corporate Income Taxes	12.5	17.5
Other	1.6	5.8
Total	9.1	4.9

■ 2020
■ 1983 to 2019 (Mean)

Data source: Congressional Budget Office. See www.cbo.gov/publication/56885#data.

The mean absolute error is the arithmetic average of the projection errors without regard to whether they are positive or negative, so errors in different directions do not offset one another. CBO calculated projection errors by subtracting the actual revenue amount from the projection and dividing that difference by the actual revenue amount.

The 2020 projection shown here is based on CBO's May 2019 baseline budget projections; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the estimated budgetary effects of legislation that was subsequently enacted.

The mean absolute errors are based on budget-year projections for 1983 to 2019. The budget year is the second year of the baseline projections; it usually begins several months after a spring baseline is released. The actual outcomes were adjusted to exclude the estimated effects of legislation that was enacted after the projections were produced.

those errors are partially offsetting, the deficit error was smaller.[12]

Deficit

In projections that CBO made for 1985 to 2019, the agency overestimated the deficit in the budget year roughly two-thirds of the time, and the mean absolute error in the deficit projections equaled 1.0 percent of GDP. In its updated May 2019 baseline projections, which include the

estimated budgetary effects of subsequent legislation (and exclude spending for Fannie Mae and Freddie Mac), CBO overestimated the deficit in the budget year (that is, 2020) by $110 billion, or by 0.5 percent of GDP.
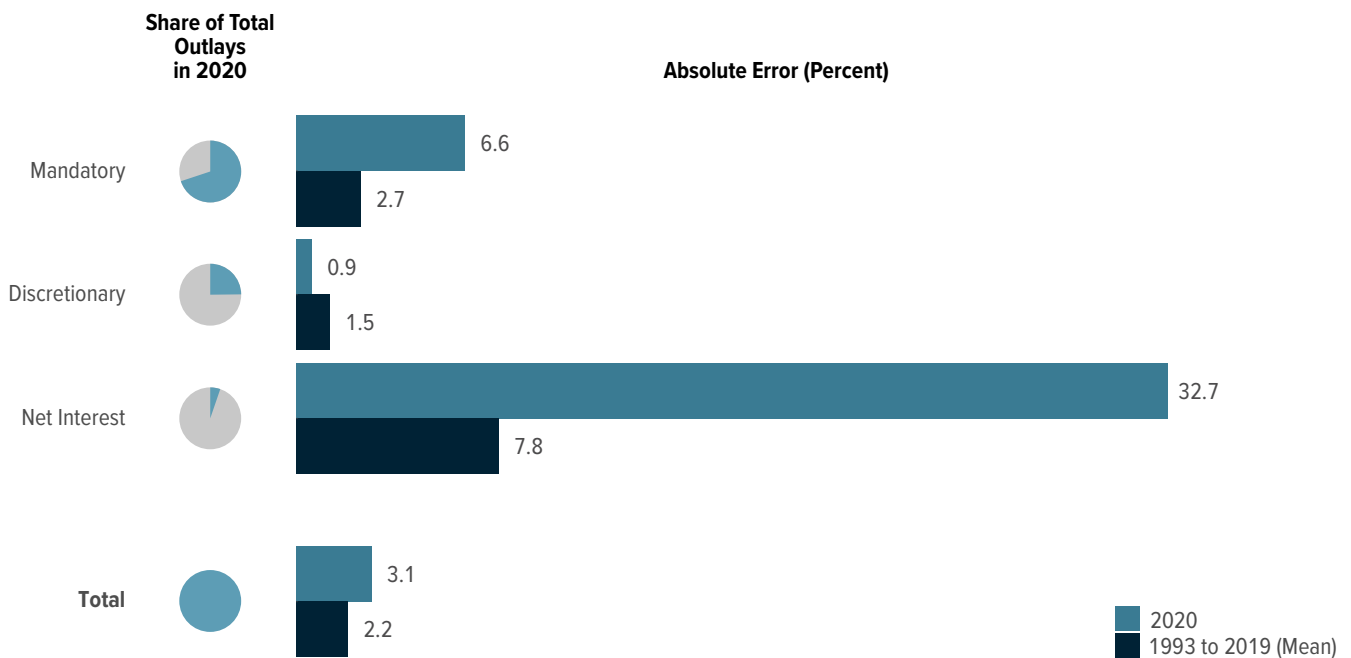
Revenues

For the period between 1983 and 2019, CBO overestimated total revenues in the budget year about as often as it underestimated them, and the mean absolute error in the revenue projections was 5 percent. In its updated May 2019 baseline projections, which include the estimated budgetary effects of subsequent legislation, the agency's estimate for 2020 fell short of the actual amount by 9 percent (see Figure 1).

---

12. For more detailed discussions about the quality of CBO's projections, see Congressional Budget Office, *An Evaluation of CBO's Past Revenue Projections* (August 2020), www.cbo.gov/publication/56499, *An Evaluation of CBO's Past Deficit and Debt Projections* (September 2019), www.cbo.gov/publication/55234, and *An Evaluation of CBO's Past Outlay Projections* (November 2017), www.cbo.gov/publication/53328.

Figure 2.

Projection Errors for Outlays

Share of Total Outlays in 2020

Absolute Error (Percent)

Mandatory — 6.6 / 2.7

Discretionary — 0.9 / 1.5

Net Interest — 32.7 / 7.8

Total — 3.1 / 2.2

2020
1993 to 2019 (Mean)

Data source: Congressional Budget Office. See www.cbo.gov/publication/56885#data.

The mean absolute error is the arithmetic average of the projection errors without regard to whether they are positive or negative, so errors in different directions do not offset one another. CBO calculated projection errors by subtracting the actual outlay amount from the projection and dividing that difference by the actual outlay amount.

The 2020 projection shown here is based on CBO's May 2019 baseline budget projections; those projections were published in Congressional Budget Office, *Updated Budget Projections: 2019 to 2029* (May 2019), www.cbo.gov/publication/55151. For this analysis, CBO further updated those projections to account for the estimated budgetary effects of legislation that was subsequently enacted.

The mean absolute errors are based on budget-year projections for 1993 to 2019. The budget year is the second year of the period covered by CBO's baseline projections; it usually begins several months after a spring baseline is released. The actual outcomes were adjusted to exclude the estimated effects of legislation that was enacted after the projections were produced and to exclude outlays related to the activities of Fannie Mae and Freddie Mac (which are classified as mandatory).

CBO underestimated individual income tax revenues in 2020 by 16 percent, more than double the mean absolute error of 7 percent over the 1983–2019 period. CBO's projection of payroll tax revenues in 2020 was 2 percent below the actual amount, about the same as the mean absolute error recorded over the period from 1983 to 2019.

Corporate income taxes had a mean absolute error of 17 percent. That error is the largest among major sources for the 1983–2019 period because those receipts are often the most difficult to predict. For 2020, CBO underestimated those revenues by 12 percent. The agency's estimate of revenues from all other sources, on net, was 2 percent less than the actual amounts—also a smaller difference than the mean absolute error of 6 percent recorded over the 1983–2019 period.

Outlays

Between 1993 and 2019, CBO overestimated total outlays in the budget year more often than it underestimated them, and the mean absolute error in the outlay projections was 2 percent. In its updated May 2019 baseline projections, which include the estimated budgetary effects of subsequent legislation, the agency underestimated total outlays in the budget year. CBO's estimate of total outlays in 2020 was 3 percent less than the actual amount (see Figure 2).

CBO underestimated mandatory outlays in 2020 by 7 percent. Between 1993 and 2019, the mean absolute error in projections of mandatory spending was smaller—3 percent. The error for Medicare in 2020 significantly exceeded the mean absolute error in projections for that program for the 1993–2019 period.

The projection error for Medicaid in 2020 was notably smaller than its historical error, and the Social Security projection error equaled its mean absolute error between 1993 and 2019. The error for 2020 for all other mandatory outlays was higher than the historical error for such outlays.

CBO underestimated discretionary spending in 2020 by 1 percent; the mean absolute error recorded over the 1993–2019 period was 2 percent. CBO has often overestimated net outlays for interest, and the agency did so again in its projections for 2020, by 33 percent. By comparison, the mean absolute error in CBO's projections of net outlays for interest between 1993 and 2019 was 8 percent.

How CBO's More Recent Projections Compare With Actual Outcomes in 2020

CBO's most recent projections for fiscal year 2020 were published in March 2020 and September 2020.[13] To compare those projections with actual outcomes, CBO updated them to account for the enactment of subsequent legislation but excluded spending for Fannie Mae and Freddie Mac. In the March 2020 projections as updated, CBO's deficit, revenue, and outlay errors were similar to those in its updated May 2019 projections. The deficit projection was too high by $126 billion, or 0.6 percent of GDP. That difference stemmed from a $326 billion underestimate of revenues and a $200 billion underestimate of outlays.

CBO's estimate of the deficit that was published in September 2020 (and prepared in July of that year) was $179 billion (or 0.9 percent of GDP) more than the actual amount. That error was about $50 billion larger than the deficit error in its March 2020 projection.

---

13. See Congressional Budget Office, *Baseline Budget Projections as of March 6, 2020: 2020 to 2030* (March 2020), www.cbo.gov/publication/56268, and *An Update to the Budget Outlook: 2020 to 2030* (September 2020), www.cbo.gov/publication/56517.

Although CBO's estimates of both revenues and outlays in September 2020 were notably closer to actual amounts than its March 2020 estimates, the September errors did not partially offset one another (as they did in March). In total, revenue projections were $124 billion (3.6 percent) less than the actual amount, and projections of outlays were $54 billion (0.8 percent) higher.