ECONOMIC ASSUMPTIONS AND INTERACTIONS WITH THE BUDGET

2. ECONOMIC ASSUMPTIONS AND INTERACTIONS WITH THE BUDGET

This chapter presents the Administration's economic forecast and describes projections for important macroeconomic variables that inform the Administration's Fiscal Year 2017 Budget.[1] It also details the sensitivity of the Budget's estimates of receipts, outlays, and the deficit to the economic forecasts and gives a sense of the uncertainty associated with the forecast, based on historical experience.

When the President took office in 2009, the U.S. economy, along with that of much of the rest of the world, was in the midst of the deepest recession since the Great Depression. In response, the President and the entire Administration took unprecedented actions to mitigate the effects of this downturn, put people back to work, and bring the economy back on the road to recovery. To this end, the President worked with the Congress to enact the American Recovery and Reinvestment Act to boost spending on infrastructure, extend support to workers who had lost their jobs, provide tax credits to working families, and ease burdens on State and local governments so that they maintain essential services with minimal interruption. The Administration also took steps to reform the financial system and help prevent future financial crises by securing passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act; and helped slow the growth of health care costs while providing quality, affordable insurance coverage to millions of Americans by fighting for passage of the Affordable Care Act (ACA). These, and other efforts, brought the economy back from the brink.

The avoidable and destructive effects of sequestration and repeated crises related to the threat of default and government shutdowns have at times, however, hampered economic recovery. Such episodes have occurred periodically over the last several years and have contributed to a slower rate of aggregate demand growth than might otherwise have been the case. Following the Government shutdown in October 2013, policymakers started to move away from manufactured crises and austerity budgeting, helping to lay the groundwork for job market gains and stronger growth. The President worked with Congress to secure a two-year budget agreement (the Bipartisan Budget Act of 2013) that replaced a portion of the harmful sequestration cuts and allowed for higher investment levels in 2014 and 2015. In 2015, the President worked with congressional leaders from both parties to secure agreements on aggregate targets for discretionary spending for fiscal years 2016 and 2017 with the passage of the Bipartisan Budget Act of 2015 and the Consolidated Appropriations Act of 2016. Based on analysis of the effects of full sequester relief by the Congressional Budget Office, it is estimated that these actions will add 340,000 jobs in 2016 and 500,000 job-years total over 2016 and 2017, while supporting middle-class families, investing in our long-term growth, protecting Social Security, and safeguarding our national security. In addition, the Bipartisan Budget Act of 2015 suspended the statutory debt limit until March 2017. Together, these two pieces of legislation ended yet another period of brinksmanship and uncertainty and put us on a path to continue creating jobs and promoting economic growth.

The United States right now has the strongest, most durable economy in the world. And while there is more work to do as the economy continues to grow, there are encouraging signs about the economy's future. Real GDP (gross domestic product) has grown steadily over the last few years. Driven by strong job growth in the private sector, the unemployment rate has dropped to its lowest level since early 2008 and it has been cut in half relative to its peak following the global financial crisis.

The Administration projects that real GDP will grow at a 2.6 percent rate in 2016, on a year-over-year basis, slightly faster than in 2014, and slightly faster than what is expected for 2015. This is expected to be followed by a further 2.6 percent gain in 2017. The unemployment rate is expected to continue falling to a trough of 4.5 percent in late 2016 and early 2017, after which it is expected to rise to 4.9 percent, the level that the Administration considers to be consistent with stable inflation and full employment.

The rest of this chapter proceeds as follows:

- The first section reviews the performance of the U.S. economy over the last year, across a wide range of indicators.
- The second section reports the Administration's projections for a number of macroeconomic variables over the next eleven years.
- The third section compares the Administration's forecasts with those of other prominent public and private sector forecasts.
- The fourth section illustrates the sensitivity of projections for Federal receipts and outlays (and implicitly the Federal budget balance) to deviations from the macroeconomic forecasts.
- The fifth section analyzes past forecasting errors on the part of the Administration, comparing them with the errors in forecasting made by the Congressional Budget Office and the Blue Chip Consensus of private professional forecasters.
- The sixth section combines the forecast errors and the sensitivity of budget projections to the economic assumptions to construct a probabilistic range for the values of the budget deficit over the next few years.

[1] Economic performance is discussed in terms of calendar years. Budget figures are discussed in terms of fiscal years. Economic growth figures are in real (inflation-adjusted) terms unless otherwise noted.

- The last section presents the cyclical budget balance, that part of the Federal budget deficit or surplus that can be ascribed to transitory factors associated with the economic cycle, and the structural budget balance, that part that would prevail even if the economy were operating at full employment.

Recent Economic Performance

In the past year, economic conditions in the United States have continued to improve, extending the recovery that began after the deep recession that began in 2007 and lasted into 2009. In the four quarters through the end of September 2015, real GDP growth was 2.1 percent. This was spurred by robust growth in consumer spending, which grew at a 3.1 percent rate during that time. Overall real GDP growth was held down, however, by weakness among our trading partners. The unemployment rate had decreased to 5.0 percent in the fall of 2015, the lowest rate since early 2008. Still, there is evidence that labor markets have room to improve further. The passage of the Bipartisan Budget Act of 2015 and the omnibus budget appropriations and tax bill, as well as the lifting of the Federal debt limit through March 2017, set the economy on a continued pace of recovery and resolved many of the uncertainties which might otherwise have impeded economic growth.

Labor Markets—The unemployment rate dropped to 5.0 percent in the fall of 2015. Creation of private nonfarm jobs remained strong, with an average monthly addition of over 200,000 jobs in 2015. This brought the string of consecutive months with positive private job creation to 70. These figures, however, do not fully reveal the scope of the recovery in the labor market. The proportion of the labor force that has been unemployed for more than 27 weeks declined to an average of 1.5 percent in 2015, down from an average of 2.9 percent over the years from 2008 to 2014. Still, the pre-crisis average was less than 1 percent, suggesting that there is yet further room for the labor market to improve. Similarly, the proportion that would like to be working full-time, but is working part-time for economic reasons, also declined to an average of 4.1 percent from an average of 5.1 percent from 2008 to 2014. The pre-crisis average was 3.6 percent, again signaling the potential for continued labor market improvements. Firmer labor markets contributed to inflation-adjusted median usual weekly earnings growth for full-time workers of 3.0 percent through the four quarters ending in December 2015, much faster than in comparable periods of recent years. The unemployment rate remained slightly above the Administration's estimate of 4.9 percent for the NAIRU (the so-called "non-accelerating inflation rate of unemployment"). This, combined with the still high number of people who were working part-time for economic reasons, the labor force participation rate having fallen faster than demographic fundamentals, and core inflation in the index for personal consumption expenditures (PCE) well below the Federal Reserve's target range, suggests scope for further above-trend growth of real GDP.

External Factors—In 2015, many large emerging economies experienced slower growth rates relative to what they had become accustomed to in recent years. Commonly, in the evaluation of emerging markets, analysts focus on the BRICS countries (Brazil, Russia, India, China, and South Africa) as a benchmark due to their size and diversity. The International Monetary Fund (IMF) estimates that the year-over-year growth rate of real GDP in China slowed by about half a percentage point in 2015, and it projects another drop in growth in 2016. Two other large emerging markets, Russia and Brazil, saw their GDP shrink in 2015, and the IMF expects continued declines for these countries in 2016 also. At the same time, South Africa saw positive but relatively slow growth. Weaker demand overseas has dampened foreign demand for American goods and services. It has also encouraged investors worldwide to shift to U.S. assets, continuing a trend that has developed over the last two to three years. Although this has helped to keep interest rates in the United States relatively low, it also has been a factor in strengthening the dollar (which has appreciated by about 11.8 percent in December 2015 relative to December 2014 on a nominal trade-weighted basis[2]), and this could make it more difficult for American firms to export to international markets going forward.

Oil Prices—Oil prices fell sharply over the second half of 2014 and have continued to decline through early 2016. The average price of a barrel of West Texas Intermediate crude (the U.S. benchmark) was a little under $50 in 2015, compared with an average over $90 in 2014. The lower price for oil is the result of a number of factors, including weaker demand abroad, the lack of production cuts in OPEC countries[3] in the face of low prices, and increased production in the United States. U.S. oil production grew by 10.1 percent in the first nine months through September 2015, the last month for which data was available, compared with the same period in 2014. This recent growth follows 16.8 percent growth in calendar year 2014 and 14.7 percent growth in calendar year 2013. For the second straight year, domestic oil production exceeded oil imports. Low oil prices have passed through to substantially lower gasoline prices for American consumers and, in turn, help to support consumer spending on other goods and services and also provide a competitive advantage to American firms, especially those that are energy-intensive.

House Prices—Housing prices (as measured by the Federal Housing Finance Agency (FHFA) purchase-only index) continued to recover from the sharp drop experienced leading into and following the most recent recession. In November 2015, the FHFA index was 5.9 percent higher than in the same month a year earlier. Up to a point, higher valuations of houses help the economy

[2] Specifically, this figure measures the appreciation of the dollar's value against a trade-weighted basket of major currencies, which include the euro, the Canadian dollar, the Japanese yen, the British pound, the Swiss franc, the Australian dollar, and the Swedish krona.

[3] OPEC stands for the Organization of Petroleum Exporting Countries and is an organization comprising many of the largest producers of crude oil in the world. In the past, OPEC has often responded to lower prices for oil by imposing tighter quotas on production by its members.

by enhancing household wealth, which, in turn, helps to support a higher level of consumption. Higher house prices can also encourage more home building, as appears to have happened in 2015 with an increase in the average monthly pace of housing starts. The average annual rate of housing starts rose to just over 1.1 million in the twelve months of 2015, up over ten percent from just over 1 million (at an average annual rate) in the same period a year earlier. Starts have trended steadily higher in the six years since bottoming out at an average annual rate of 554 thousand recorded at the depths of the recession in 2009. Despite this recent strength, housing starts are still well below the level commonly believed necessary to provide enough housing for a growing population with an expanding number of households, which is about 1.6 million per year. This suggests there is scope for continued growth in housing starts and increases in house prices in the near future.

Consumption—Consumption by private households is a major part of the country's economy, accounting for about 68.3 percent of annual output in 2014. Because of its large share of GDP, consumer spending growth is essential to economic growth in the United States. Since 2013, consumption growth has been faster than the rate of growth in the economy as a whole. Although growth in consumption in the first quarter of 2015 was fairly weak by the standards of the last few years, it picked up in the middle of the year. Consumer spending has been supported by rising wealth in the form of higher house prices and generally strong equity markets during the past several years. Growth in the consumption of services, such as health care and education, has been solid (2.8 percent growth in the year through the third quarter of 2015), as has been growth in spending on durable goods. Consumption of automobiles grew 3.3 percent in the four quarters ending in the third quarter of 2015, while that of furniture and other home equipment grew 6.1 percent in the same period.

Nonresidential Fixed Investment—Private nonresidential fixed investment tends to be one of the more volatile components of GDP. Year-over-year growth was quite rapid in 2011, 2012, and 2014, exceeding 6 percent, while it was more subdued in 2010, 2013, and 2015, when it was 3 percent or less. Despite being volatile, there is reason to believe that future growth in investment will be healthy. Strong growth in consumer spending ought to encourage firms to invest in new productive capacity to keep up with rising demand, and strong cash flows for nonfinancial firms ought to ensure adequate funding for investment.

The Government Sector—Federal consumption and gross investment has stabilized after several years of relatively sharp declines. Over the four quarters ending in the third quarter of 2015, Federal Government spending fell by 1.1 percent, but this compares with a decline of 4.0 percent in the year ending in the third quarter of 2011, a 1.4 percent drop in the year ending in the third quarter of 2012, and a 6.6 percent drop in the year ending in the third quarter of 2013. At the end of October, the Administration and the Congress came to an agreement on a two-year budget deal (the Bipartisan Budget Act of 2015) that would help to offset some of the damaging fiscal cuts enacted in recent years and protect the economy from the dangers of an unnecessary default on the government's obligations in the near future due to failure to raise the statutory debt limit. These agreements help provide a degree of certainty that is essential to both consumers and firms when they are making decisions on how much to save or invest. Fiscal conditions at the State and local level have also improved after a four year period of spending cuts that finally ended in 2014. In the year ending in the third quarter of 2015, State and local government consumption and gross investment grew at a 1.9 percent clip, its fastest rate of increase since 2009.

Monetary Policy—At the beginning of the year, market expectations were that the Federal Reserve would finally begin returning to a more conventional policy stance, starting with raising the federal funds rate target from its zero lower bound. This process formally began when the Federal Open Market Committee raised its target for the federal funds rate, the rate that banks pay on their overnight loans, from a range of 0.00 percent to 0.25 percent to a range of 0.25 percent to 0.50 percent in mid-December 2015. Strength in the labor market and reasonable confidence that inflation would rise over the next few years were the rationale for this course of action by the Fed. This shift in policy, featuring the first increase in policy interest rates in nine years, is a signal of how far the economy has come since the depths of the financial crisis, when the Fed lowered interest rates to zero.

Economic Projections

In this section, the Administration's projections for a number of important macroeconomic variables are discussed. These projections are based on information available as of early November 2015 and they assume that all of the Administration's Budget proposals will be enacted. The current section discusses only the Administration's forecast, while the next section compares the Administration forecast with other major forecasts. The projections are shown in Table 2-1.

Real GDP—The Administration expects that real GDP growth will average about 2.5 percent annually over the three years from 2016 to 2018. After that, growth is projected to slow to 2.3 percent annually, the Administration's estimate of the economy's long-run rate of growth. Faster growth in the near term is possible, because a fair amount of slack in the economy is likely still left over from the very sharp downturn experienced from 2007 to 2009 and the steady recovery thereafter. This is partially reflected in the fact that the unemployment rate, which was 5.0 percent in November, is still above the assumed level of the NAIRU (4.9 percent), while the number of workers in part-time employment for economic reasons remains elevated.

On the other hand, despite residual economic slack, forecasted real GDP growth over the next three years is only slightly above what is believed to be its long-run rate. This can be explained by a number of factors. First, as in

Table 2–1. ECONOMIC ASSUMPTIONS[1]
(Calendar Years, Dollar Amounts in Billions)

	Actual	Projections											
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross Domestic Product (GDP)													
Levels, Dollar Amounts in Billions:													
Current Dollars	17348	17948	18669	19510	20345	21237	22155	23121	24128	25179	26272	27413	28603
Real, Chained (2009) Dollars	15962	16351	16777	17209	17629	18041	18456	18880	19314	19759	20213	20678	21153
Chained Price Index (2009=100), Annual Average	108.7	109.8	111.3	113.4	115.4	117.7	120.0	122.5	124.9	127.4	130.0	132.6	135.2
Percent Change, Fourth Quarter over Fourth Quarter:													
Current Dollars	3.9	3.3	4.3	4.4	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3	4.3
Real, Chained (2009) Dollars	2.5	2.2	2.7	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Chained Price Index (2009=100)	1.3	1.1	1.6	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Percent Change, Year over Year:													
Current Dollars	4.1	3.5	4.0	4.5	4.3	4.4	4.3	4.4	4.4	4.4	4.3	4.3	4.3
Real, Chained (2009) Dollars	2.4	2.4	2.6	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Chained Price Index (2009=100)	1.6	1.0	1.4	1.9	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Incomes, Billions of Current Dollars													
Domestic Corporate Profits	1655	1638	1636	1746	1858	1935	1988	2048	2105	2168	2227	2305	2404
Employee Compensation	9249	9606	9987	10369	10794	11261	11775	12322	12897	13496	14135	14780	15477
Wages and Salaries	7478	7777	8078	8400	8753	9132	9549	9983	10444	10926	11438	11963	12531
Other Taxable Income[2]	4075	4216	4282	4459	4638	4925	5209	5498	5767	6035	6286	6524	6759
Consumer Price Index (All Urban):[3]													
Level (1982-1984 = 100), Annual Average	236.7	237.0	240.7	245.9	250.9	256.6	262.3	268.3	274.4	280.6	287.0	293.4	300.1
Percent Change, Fourth Quarter over Fourth Quarter	1.2	0.5	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Percent Change, Year over Year	1.6	0.1	1.5	2.1	2.1	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Unemployment Rate, Civilian, Percent													
Fourth Quarter Level	5.7	5.0	4.5	4.6	4.6	4.6	4.7	4.8	4.8	4.9	4.9	4.9	4.9
Annual Average	6.2	5.3	4.7	4.5	4.6	4.6	4.7	4.7	4.8	4.9	4.9	4.9	4.9
Federal Pay Raises, January, Percent													
Military[4]	1.0	1.0	1.3	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Civilian[5]	1.0	1.0	1.3	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interest Rates, Percent													
91-Day Treasury Bills[6]	*	*	0.7	1.8	2.6	3.1	3.3	3.4	3.4	3.3	3.3	3.2	3.2
10-Year Treasury Notes	2.5	2.1	2.9	3.5	3.9	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2

[1] Based on information available as of mid-November 2015
[2] Rent, interest, dividend, and proprietors' income components of personal income
[3] Seasonally adjusted CPI for all urban consumers
[4] Percentages apply to basic pay only; percentages to be proposed for years after 2017 have not yet been determined.
[5] Overall average increase, including locality pay adjustments. Percentages to be proposed for years after 2017 have not yet been determined.
[6] Average rate, secondary market (bank discount basis)
* 0.05 percent or less

the case of the previous two expansions (1991 and 2001), the current expansion has generally featured steady, but fairly modest growth to this point. This is due in part to the special nature of the most recent recession, which was distinguished by a severe credit crunch that left a significant debt overhang for many households and firms. Also, weakness abroad, in Europe and in large emerging markets, is also likely to affect growth in the next couple of years. All of these factors are likely to restrain the rate of growth, especially when compared with what one might expect given that there is still scope for the economy to return to its pre-recession trend.

Long Run Growth—While it is difficult to project cyclical developments beyond the next few years, the Administration projects that after the economy returns to its trend rate of growth in the forecast, it will remain there for the duration of the forecast window. Real GDP growth is projected to be 2.3 percent at an average annual rate in the long run, below the average growth rate in the postwar period of 3.2 percent. The projected slower growth results from a decline in the growth rate of the working-age population and a decrease in the labor force participation rate caused by the retirement of the baby boom generation. The first cohort of the baby boom, born in

Table 2–2. COMPARISON OF ECONOMIC ASSUMPTIONS IN THE 2016 AND 2017 BUDGETS
(Calendar Years, Dollar Amounts in Billions)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Nominal GDP:											
2016 Budget Assumptions[1]	18123	18971	19862	20773	21692	22636	23620	24648	25720	26838	28005
2017 Budget Assumptions	17948	18669	19510	20345	21237	22155	23121	24128	25179	26272	27413
Real GDP (2009 Dollars):											
2016 Budget Assumptions[1]	16453	16947	17423	17872	18296	18717	19147	19588	20038	20499	20971
2017 Budget Assumptions	16351	16777	17209	17629	18041	18456	18880	19314	19759	20213	20678
Real GDP (Percent Change):[2]											
2016 Budget Assumptions[1]	3.1	3.0	2.8	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3
2017 Budget Assumptions	2.4	2.6	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
GDP Price Index (Percent Change):[2]											
2016 Budget Assumptions[1]	1.3	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2017 Budget Assumptions	1.0	1.4	1.9	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Consumer Price Index (All-Urban; Percent Change):[2]											
2016 Budget Assumptions	1.4	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
2017 Budget Assumptions	0.1	1.5	2.1	2.1	2.3	2.2	2.3	2.3	2.3	2.3	2.3
Civilian Unemployment Rate (Percent):[3]											
2016 Budget Assumptions	5.4	5.1	4.9	4.9	5.0	5.1	5.2	5.2	5.2	5.2	5.2
2017 Budget Assumptions	5.3	4.7	4.5	4.6	4.6	4.7	4.7	4.8	4.9	4.9	4.9
91-Day Treasury Bill Rate (Percent):[3]											
2016 Budget Assumptions	0.4	1.5	2.4	2.9	3.2	3.3	3.4	3.4	3.5	3.5	3.5
2017 Budget Assumptions	*	0.7	1.8	2.6	3.1	3.3	3.4	3.4	3.3	3.3	3.2
10-Year Treasury Note Rate (Percent):[3]											
2016 Budget Assumptions	2.8	3.3	3.7	4.0	4.3	4.5	4.5	4.5	4.5	4.5	4.5
2017 Budget Assumptions	2.1	2.9	3.5	3.9	4.1	4.2	4.2	4.2	4.2	4.2	4.2

[1] Adjusted for July 2015 NIPA Revisions
[2] Calendar Year over Calendar Year
[3] Calendar Year Average
* 0.05 percent or less

1946, reached the early-retirement age for Social Security benefits (62 years old) in 2008. Since then, the number of individuals in cohorts entering their retirement years has increased, and retirements are projected to continue increasing for the next eight years. This phenomenon results in a lower projected long run growth rate.

Unemployment—For the 2016 Mid-Session Review, the Administration revised its estimate of the NAIRU down to 4.9 percent from 5.2 percent. The NAIRU is defined as the rate of unemployment consistent with a level of economic activity that is not placing either upward or downward pressure on the inflation rate. The unemployment rate stood at 5.0 percent in the fall of 2015. The Administration expects that the unemployment rate will actually dip below the NAIRU in coming years, with a low point of 4.5 percent in 2017. After that, unemployment is expected to rise gradually back to the NAIRU, reaching 4.9 percent in 2023. An unemployment rate below the NAIRU is made possible by the fact that inflation has generally run below the Federal Reserve's target in recent years, so that an unemployment rate below 4.9 percent is likely merely to push inflation back to a more normal level, rather than generate worryingly fast price increases.

Interest Rates—Since the onset of the most recent recession, both short-term and long-term interest rates have remained near historic lows. Although it is expected that the Federal Reserve will gradually raise short-term interest rates over the coming years as economic activity picks up and inflation moves closer to the Fed's target of 2 percent, the Administration expects that interest rates will remain substantially lower than the level of interest rates seen after past recoveries. The Administration projects the 91-day Treasury bill rate will reach a level of 3.3 percent by 2020 and settle at 3.2 percent by 2026. Similarly, the Administration expects the yield on the ten-year Treasury bond to rise gradually over the forecast window, eventually reaching 4.2 percent by 2020. Relatively subdued inflation is an important reason for the lower interest rate environment. It is also the case that the yield on ten-year government bonds (in both nominal and real terms) has been trending downward for several decades.[4]

Inflation—Consumer price inflation (as measured by the consumer price index for all urban consumers, or CPI-U) has been low in recent years. In fact, prices have risen at a pace of 2 percent or less annually since 2012, and they have been almost unchanged in 2015. The re-

[4] See the recent analysis by the Council of Economic Advisers (https://www.whitehouse.gov/sites/default/files/docs/interest_rate_report_final_v2.pdf).

Table 2–3. COMPARISON OF ECONOMIC ASSUMPTIONS
(Calendar Years)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Nominal GDP:												
2017 Budget	17948	18669	19510	20345	21237	22155	23121	24128	25179	26272	27413	28603
CBO	17957	18689	19505	20326	21102	21923	22823	23766	24746	25764	26831	27942
Blue Chip	17955	18701	19553	20426	21313	22240	23207	24216	25268	26367	27512	28708
Real GDP (Year-over-Year):												
2017 Budget	2.4	2.6	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
CBO	2.4	2.5	2.6	2.3	1.8	1.9	2.1	2.1	2.1	2.0	2.0	2.0
Blue Chip	2.5	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Real GDP (Fourth Quarter-over-Fourth Quarter):												
2017 Budget	2.2	2.7	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
CBO	2.0	2.7	2.5	2.1	1.8	1.9	2.1	2.1	2.0	2.0	2.0	2.0
Blue Chip	2.1	2.6	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Federal Reserve Central Tendency [3]	2.1	2.3 - 2.5	2.0 - 2.3	1.8 to 2.2 longer run								
GDP Price Index: [1]												
2017 Budget	1.0	1.4	1.9	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
CBO	1.1	1.6	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
Blue Chip	1.0	1.7	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Consumer Price Index (CPI-U): [1]												
2017 Budget	0.1	1.5	2.1	2.1	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3
CBO	0.1	1.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Blue Chip	0.1	1.6	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Unemployment Rate: [2]												
2017 Budget	5.3	4.7	4.5	4.6	4.6	4.7	4.7	4.8	4.9	4.9	4.9	4.9
CBO	5.3	4.7	4.4	4.6	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Blue Chip	5.3	4.8	4.6	4.7	4.7	4.8	4.9	5.0	5.0	5.0	5.0	5.0
Federal Reserve Central Tendency [3]	5.0	4.6 - 4.8	4.6 - 4.8	4.6 to 5.0 longer run								
Interest Rates: [2]												
91-Day Treasury Bills (discount basis):												
2017 Budget	*	0.7	1.8	2.6	3.1	3.3	3.4	3.4	3.3	3.3	3.2	3.2
CBO	0.1	0.7	1.6	2.5	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Blue Chip	0.1	0.7	1.7	2.8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10-Year Treasury Notes												
2017 Budget	2.1	2.9	3.5	3.9	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
CBO	2.2	2.8	3.5	3.9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Blue Chip	2.1	2.6	3.2	3.8	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.1

Sources: Administration; CBO, The Budget and Economic Outlook: 2016 to 2026, January 2016; October 2015 and January 2016 Blue Chip Economic Indicators, Aspen Publishers, Inc.; Federal Reserve Open Market Committee, December 16, 2015

[1] Year-over-Year Percent Change

[2] Annual Averages, Percent

[3] Average of Fourth Quarter Values

* 0.05 percent or less

NA = Not Available

cent low level of inflation partly reflects the sharp drop in oil prices and nonpetroleum import prices in the last eighteen months. Stripping out the effects of energy and food prices, which tend to be volatile, the so-called core Consumer Price Index has also been relatively low over the last three years. Core prices were 2.0 percent higher in the fourth quarter of 2015 than in the fourth quarter of 2014. This followed fourth quarter-over-fourth quarter core inflation of 1.7 percent in 2013 and 2014. The Administration expects that the overall consumer price index will inch back to more normal rates of increase in the coming years, rising at an average pace of 2.0 percent over 2016-2018 and 2.3 percent after that. The Administration estimates that rates of increase in the CPI of 2.3 percent are consistent with the Federal Reserve's target of 2.0 percent for the price index for personal consumption expenditures.

Changes in Economic Assumptions from Last Year's Budget—There are a number of changes to the Administration's forecast relative to that published in the Budget last year, as reported in Table 2-2. For the years 2016 to 2018, the projection last year was for average an-

nual growth of 2.7 percent, but this year's forecast calls for a 2.5 percent average growth rate. Still, the long-run trend growth rate of GDP is the same as forecast last year. The projected path of the unemployment rate has been revised down substantially compared with last year's forecast. It is now expected to reach a trough of 4.5 percent in 2016 and 2017, whereas last year, unemployment was not forecast to fall below 4.8 percent. In addition, as mentioned above, the Administration has revised down its assumption for the NAIRU to 4.9 percent from 5.2 percent and, consequently, the long run unemployment rate has also been revised downward. Expectations for the interest rate path, both at short- and long-run maturities, have also been lowered. The new forecasts for the 91-day Treasury bill rate and the yield on the ten-year Treasury note are lower in every year of the forecast window relative to last year. The expected level in the last year of the forecast is 30 basis points lower for the short rate and 30 basis points lower for the long rate.

Comparison with Other Forecasts

This section compares the Administration's forecast with those of the Congressional Budget Office (CBO), the Federal Reserve Open Market Committee (FOMC), and the Blue Chip Consensus, which aggregates the forecasts of about 50 private sector economists. The Administration's forecast is based on information available through mid-November 2015. The relevant CBO forecast was published in January of 2016. The Blue Chip figures presented here are from the October 2015 and January 2016 releases, and the FOMC projections are from December 2015. The FOMC projects a somewhat different set of variables than the others do. Table 2-3 presents all of these forecasts.

These forecasts have several features in common. For example, in all cases, real GDP growth is expected to pick up over the next two to three years before settling down again to its long run level. Analogously, the unemployment rate is forecast to dip over the next few years and then return to what each entity believes to be the equivalent of the NAIRU. All of the projections show interest rates slowly climbing throughout the forecast window, and all show inflation getting back to a steady rate of between 2.0 percent and 2.3 percent within the next couple of years. These forecasts differ, however, in several important ways.

Importantly, not all of the forecasts make the same assumptions about the extent to which the Administration's Budget proposals will be implemented. These include policies related to trade agreements, immigration reform (specifically its effect on total factor productivity), business tax reform, infrastructure investment, community college subsidies, and policies intended to boost labor supply. The Administration's forecast assumes that all of these policies will be fully implemented. CBO, on the other hand, constructs its forecast under current law, and it is unclear to what extent the FOMC or the Blue Chip take into account the Administration's policy proposals, though it is unlikely that they are assuming full implementation of the proposals.

Real GDP—For real GDP growth, the Administration forecast differs from the rest of the forecasts in several ways. In the near term, the CBO and the Administration expect a faster rate of growth, calling for growth of 2.7 percent in 2016 and 2.5 percent in 2017, while the Blue Chip survey (2.6 percent in 2016 and 2.4 percent in 2017) and the FOMC (2.3 percent-2.5 percent and 2.0 percent-2.3 percent respectively) project slower growth rates. Also, in the later years of the forecast, the Administration currently expects a faster trend growth rate than any of the other forecasters at 2.3 percent, compared with 2.0 percent for CBO, 2.2 percent for the Blue Chip panel, and 2.0 percent for the FOMC median forecaster. There is also variation in when each forecast expects real GDP growth to return to its long-run pace. The FOMC projects that this will happen as soon as 2018, while the CBO does not see it happening until 2023. The Administration and the Blue Chip both expect growth to settle back down to its long run trend in 2019. While these differences are fairly small and likely within the margin of error for each, the Administration's forecast forms the upper bound of the range, probably due to the fact that it assumes that all of the Administration's Budget proposals, including trade expansion and the improvements in total factor productivity attributable to immigration reform, will be implemented.

Unemployment—The Administration's long-run unemployment rate forecast is 4.9 percent, which is at the low end of the range projected by other forecasters. The FOMC expects the long-run rate of unemployment to be within the range of 4.6 percent to 5.0 percent, which encompasses the Administration's forecast. The Blue Chip Consensus and CBO expect a slightly higher unemployment rate of 5.0 percent in the long run. In the short to medium term, the Administration's forecast projects that the unemployment rate will decline to a lower level than what is expected by most of the other forecasts (reaching a low of 4.5 percent while only CBO's forecast gets below 4.6 percent). Moreover, the Administration's projection takes longer than the other projections to get back to the NAIRU. For example, in the Administration's forecast, the unemployment rate returns to 4.9 percent, its long-run level, in 2023, but the FOMC projects it will return to its long-run level in 2018, the CBO in 2020, and the Blue Chip panel in 2022.

Interest Rates—The Administration's forecast for short-term interest rates is initially on the high end of the forecast range that includes only the CBO and the Blue Chip. It expects short-term rates to be at 1.8 percent in 2017, above the 1.7 percent forecast by Blue Chip and 1.6 percent forecast by CBO. The Administration projects a steady rise in interest rates after 2018, to 3.4 percent in 2021 and 2022 after which it forecasts a gradual decline to 3.2 percent by 2026. Blue Chip, on the other hand, expects no increase in the short-term rate after it reaches 3.1 percent in 2019, and CBO expects no change after reaching 3.2 percent in 2019. With regard to yields on ten-year government bonds, the Administration's projected path lies above those of the other two forecasters

for nearly the entire forecast window. In the long run, the Administration's expected 4.2 percent interest rate is higher than the 4.1 percent forecast by both Blue Chip and CBO.

Inflation—In the near term, the Administration's forecast for consumer price inflation is below that of both the Blue Chip panel and the CBO. Even by 2020, the Administration expects an inflation rate of 2.2 percent, compared with the Blue Chip's expectation of 2.3 percent and CBO's expectation of 2.4 percent. By the end of the forecast window, both the Administration and Blue Chip project an annual inflation rate of 2.3 percent, but CBO projects a slightly higher 2.4 percent rate of inflation.

Sensitivity of the Budget to Economic Assumptions

Federal spending and tax collections are heavily influenced by developments in the economy. Receipts are a function of growth in incomes for households and firms. Spending on social assistance programs may rise when the economy enters a downturn, while increases in spending on Social Security and other programs are dependent on consumer price inflation. A robust set of projections for macroeconomic variables assists in budget planning, but unexpected developments in the economy have ripple effects for Federal spending and revenues. This section seeks to provide an understanding of the magnitude of the effects that unforeseen changes in the economy can have on the budget.

To make these assessments, the Administration relies on a set of rules of thumb that can predict how certain spending and revenue categories will react to a change in a given macroeconomic variable, holding everything else constant. These rules of thumb provide a sense of the broad changes one would expect after a given development, but they cannot anticipate how policy makers would react and potentially change course in such an event. For example, if the economy were to suffer an unexpected recession, the rules of thumb suggest that tax revenues would decline and that spending on programs such as unemployment insurance would go up. In such a situation, however, policy makers might cut taxes to stimulate the economy, and such behavior would not be accounted for by the historical relationships captured by the rules of thumb.

Another caveat is that it is often unrealistic to suppose that one macroeconomic variable might change but that others would remain constant. Most macroeconomic variables interact with each other in complex and subtle ways. For example, economists tend to believe that when the unemployment rate gets to very low levels, this will place upward pressure on wages, which will, in turn, push up the overall price level in the economy and lead to higher inflation. This relationship is known in the economics profession as the Phillips Curve. Thus, although in the exercises to follow, for example, results will be reported for an increase in the unemployment rate holding everything else constant, in practice, an increase in the unemployment rate might be likely to also entail a fall in inflation. These are important considerations to bear in mind when examining Table 2-4.

For real growth and employment:

- The first panel in the table illustrates the effect on the deficit resulting from a 1 percentage point reduction in GDP growth, relative to the Administration's forecast, in 2016 that is followed by a subsequent recovery in 2017 and 2018. The unemployment rate is assumed be 0.5 percentage point higher in 2016 before returning to the baseline level in 2017 and 2018. The table shows that receipts would temporarily be somewhat lower and outlays would temporarily be higher, but that the long run effect on the budget deficit would be fairly minor (an increase of just $110 billion over the eleven-year forecast horizon), due mostly to higher interest payments resulting from higher short-run deficits.
- The next panel in the table reports the effect of a reduction of 1 percentage point in GDP growth in 2016 that is not subsequently made up by faster growth in 2017 and 2018. In addition, the natural rate of unemployment is assumed to rise by half a percentage point relative to that assumed in the Administration's forecasts. Here, the effect on the Budget deficit is more substantial, as receipts are lowered in every year of the forecast, while outlays rise gradually over the forecast window. This is because unemployment will be higher, leading to lower tax revenues and higher outlays on unemployment insurance, as well as higher interest payments that follow from increased short-run deficits.
- The third panel in the table shows the impact of a GDP growth rate that is permanently reduced by 1 percentage point, while the unemployment rate is not affected. This is the sort of situation that would arise if, for example, the economy were hit by a permanent decline in productivity growth. In this case, the effect on the Budget deficit is quite large, with receipts being reduced substantially throughout the forecast window and outlays rising due to higher interest payments. The accumulated effect over the eleven-year horizon is an additional $3 trillion of deficits, reinforcing the need for productivity-enhancing investments.

For inflation and interest rates:

- The fourth panel in Table 2-4 shows the effect on the Budget in the case of a 1 percentage point higher rate of inflation and a 1 percentage point higher nominal interest rate in 2016. Both inflation and interest rates return to their assumed levels in 2017. This would result in a permanently higher price level and level of nominal GDP over the course of the forecast horizon. The effect on the Budget deficit would be fairly modest, although receipts would increase slightly more than outlays over the eleven years. This is because revenues would respond more quickly to price increases than outlays, which are set in advance. Over the years from 2016-2026, the Budget deficit would be smaller by about $54 billion. It is worth noting that higher inflation will not nec-

Table 2–4. SENSITIVITY OF THE BUDGET TO ECONOMIC ASSUMPTIONS

(Fiscal Years; In Billions of Dollars)

Budget Effect	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total of Budget Effects: 2016-2026
Real Growth and Employment:												
Budgetary effects of 1 percent lower real GDP growth:												
(1) For calendar year 2016 only, with real GDP recovery in 2017–2018:[1]												
Receipts	–18.3	–26.2	–13.6	–1.4	1.0	0.9	0.9	0.9	0.8	0.8	0.7	–53.5
Outlays	6.7	16.7	8.9	3.0	2.9	3.1	3.1	3.1	3.1	3.2	3.3	57.1
Increase in deficit (+)	25.0	42.9	22.5	4.4	1.9	2.1	2.2	2.2	2.3	2.4	2.6	110.5
(2) For calendar year 2016 only, with no subsequent recovery:[1]												
Receipts	–18.3	–34.6	–40.9	–41.7	–43.2	–45.3	–47.4	–49.6	–53.4	–53.6	–56.0	–483.7
Outlays	6.7	20.3	23.3	26.5	29.6	32.7	35.8	39.0	42.4	46.3	50.4	353.0
Increase in deficit (+)	25.0	54.9	64.2	68.2	72.8	78.0	83.2	88.5	95.8	99.8	106.3	836.8
(3) Sustained during 2016–2026, with no change in unemployment:												
Receipts	–18.3	–51.4	–95.2	–139.5	–188.5	–242.5	–300.0	–361.5	–439.9	–493.3	–567.6	–2,897.7
Outlays	–0.1	0.3	1.9	5.8	11.2	17.6	24.9	33.1	42.6	54.1	67.7	259.2
Increase in deficit (+)	18.2	51.7	97.1	145.3	199.7	260.1	325.0	394.6	482.5	547.3	635.3	3,156.9
Inflation and Interest Rates:												
Budgetary effects of 1 percentage point higher rate of:												
(4) Inflation and interest rates during calendar year 2016 only:												
Receipts	30.5	45.6	41.4	41.0	42.5	43.9	45.3	46.9	49.6	49.5	51.3	487.6
Outlays	28.9	46.8	38.3	39.5	39.2	39.6	39.4	39.6	38.7	40.9	41.8	432.7
Decrease in deficit (–)	–1.6	1.2	–3.0	–1.5	–3.3	–4.4	–6.0	–7.3	–10.9	–8.6	–9.5	–54.9
(5) Inflation and interest rates, sustained during 2016–2026:												
Receipts	30.5	76.9	123.0	169.3	221.7	279.3	338.6	400.5	482.4	537.7	616.4	3,276.5
Outlays	26.7	80.9	127.7	176.5	226.6	278.9	336.8	392.1	446.6	515.7	584.1	3,192.5
Decrease in deficit (–)	–3.8	4.0	4.6	7.2	4.9	–0.5	–1.8	–8.4	–35.8	–22.0	–32.3	–84.0
(6) Interest rates only, sustained during 2016–2026:												
Receipts	12.3	26.4	31.5	36.5	42.7	49.0	52.0	54.1	56.6	59.0	61.4	481.5
Outlays	15.6	48.1	71.4	91.8	111.7	130.9	148.3	165.5	180.5	196.3	212.0	1,372.1
Increase in deficit (+)	3.4	21.7	39.9	55.3	69.0	81.9	96.3	111.4	123.9	137.3	150.6	890.7
(7) Inflation only, sustained during 2016–2026:												
Receipts	18.2	50.1	90.8	132.2	178.0	228.8	283.8	343.7	422.3	474.5	550.0	2,772.3
Outlays	3.7	21.7	45.7	74.9	105.9	140.3	182.2	222.2	263.8	319.9	375.1	1,755.5
Decrease in deficit (–)	–14.5	–28.4	–45.1	–57.3	–72.1	–88.4	–101.5	–121.5	–158.5	–154.6	–174.9	–1,016.8
Interest Cost of Higher Federal Borrowing:												
(8) Outlay effect of $100 billion increase in borrowing in 2016	0.3	1.5	2.5	3.3	3.8	4.1	4.2	4.3	4.4	4.5	4.6	37.5

[1] The unemployment rate is assumed to be 0.5 percentage point higher per 1 percent shortfall in the level of real GDP.

essarily help keep Budget deficits down, because it is likely that monetary policy makers will act to restrain excessive inflation.

- The fifth panel in the table illustrates the effects on the Budget deficit of an inflation rate and an interest rate 1 percentage point higher than projected in every year of the forecast. As in the previous case, the overall effect on the deficit over the forecast is modest (only $84 billion accumulated), and receipts rise faster than outlays because more spending decisions are determined in advance of price increases. It is still important to note, however, that faster inflation implies that the real value of Federal spending would be eroded.

- The next panel reports the effect on the deficit resulting from an increase in interest rates in every year of the forecast, with no accompanying increase in inflation. The result is a much higher accumulated deficit, as the Federal Government would have to make much higher interest payments on its debt. Receipts would be slightly higher as the Federal Reserve would earn more on its holdings of securities and households would pay higher taxes on interest income, but these increases would not offset the effect on outlays.

Table 2–5. FORECAST ERRORS, JANUARY 1982-PRESENT

REAL GDP ERRORS			
2-Year Average Annual Real GDP Growth	Administration	CBO	Blue Chip
Mean Error	0.1	–0.2	–0.2
Mean Absolute Error	1.2	1.0	1.1
Root Mean Square Error	1.6	1.4	1.4
6-Year Average Annual Real GDP Growth			
Mean Error	0.3	0.0	0.0
Mean Absolute Error	1.0	1.0	0.9
Root Mean Square Error	1.2	1.2	1.2
INFLATION ERRORS			
2-Year Average Annual Change in the GDP Price Index	Administration	CBO	Blue Chip
Mean Error	0.3	0.3	0.4
Mean Absolute Error	0.7	0.8	0.7
Root Mean Square Error	0.9	1.0	0.8
6-Year Average Annual Change in the GDP Index			
Mean Error	0.4	0.5	0.7
Mean Absolute Error	0.7	0.8	0.9
Root Mean Square Error	0.8	1.0	1.1
INTEREST RATE ERRORS			
2-Year Average 91-Day Treasury Bill Rate	Administration	CBO	Blue Chip
Mean Error	0.3	0.6	0.6
Mean Absolute Error	1.0	1.0	1.0
Root Mean Square Error	1.3	1.3	1.3
6-Year Average 91-Day Treasury Bill Rate			
Mean Error	0.7	1.3	1.4
Mean Absolute Error	1.3	1.5	1.5
Root Mean Square Error	1.6	1.8	1.9

- The seventh panel in the table reports the effect on the Budget deficit of an inflation rate 1 percentage point higher than projected in every year of the forecast window, while the interest rate remains as forecast. In this case, the result is a much smaller deficit over the eleven years of the forecast relative to the baseline. Permanently faster inflation results in much higher revenues over the next eleven years, which helps to reduce interest payments on debt. Outlays rise due to higher cost-of-living increases on items such as Social Security, though not so much as to offset the revenue increases.
- Finally, the table shows the effect on the budget deficit if the Federal government were to borrow an additional $100 billion in 2016, while all of the other projections remain constant. Outlays rise over the forecast window by an accumulated $37.5 billion, due to higher interest payments.

It is important to note that the rules of thumb that inform this sensitivity analysis are symmetric. This means that the effect of, for example, a 1 percentage point higher rate of growth over the forecast horizon would be of the same magnitude as a 1 percentage point reduction in growth, though with the opposite sign.

Forecast Errors for Growth, Inflation, and Interest Rates

Any economic forecast will invariably be subject to a great deal of uncertainty, because of unforeseeable developments of either an economic or political nature. The forecast prepared by the Administration is no different. Furthermore, as noted in the above section, projections for the path of the budget balance are highly sensitive to assumptions about the economy. Therefore, it is essential to take stock of past errors in the forecast for real GDP growth and other variables to provide a better understanding about possible budget balance outcomes. In this section, the Administration's forecast errors since the early 1980s are compared to those of the CBO and the Blue Chip panel. In particular, forecast errors are defined as the difference between actual average real GDP growth, actual average GDP price inflation, and the actual average three-month Treasury bill rate over two- and six-year horizons and the average level over the same horizons of the same variables forecasted by the Administration, the CBO, and the Blue Chip panel. Three metrics are used. These are the mean forecast error, the mean absolute value of the forecast error, and the square root of the mean squared value of the forecast error. These latter two metrics tend to punish forecasts that miss by wide margins. This comparison is reported in Table 2-5.

In the top panel of the table, the reader can see that for real GDP growth, the three forecasts are fairly compa-

Table 2–6. DIFFERENCES BETWEEN ESTIMATED AND ACTUAL SURPLUSES OR DEFICITS FOR FIVE-YEAR BUDGET ESTIMATES SINCE 1986

(As a Percent of GDP)

	Current Year Estimate	Budget Year Estimate	Estimate for Budget Year Plus:			
			One Year (BY + 1)	Two Years (BY + 2)	Three Years (BY + 3)	Four Years (BY + 4)
Average Difference [1]	–0.8	0.2	1.1	1.8	2.3	2.6
Average Absolute Difference [2]	1.1	1.4	2.2	2.9	3.5	3.8
Standard Deviation	1.0	2.0	2.9	3.3	3.5	3.5
Root Mean Squared Error	1.3	2.0	3.0	3.7	4.1	4.3

[1] A positive number represents an overestimate of the surplus or an underestimate of the deficit. A negative number represents an overestimate of the deficit or an underestimate of the surplus.

[2] Average absolute difference is the difference without regard to sign

rable, although the Administration's forecast has tended to be a little more optimistic than the other two in the past and, at the two-year horizon, has missed by a slightly larger margin on average. At the six-year horizon, however, the errors are attenuated somewhat. This is likely due to the fact that growth in real GDP tends to be mean-reverting over a longer span of time, thus making growth rates somewhat simpler to forecast in the medium term.

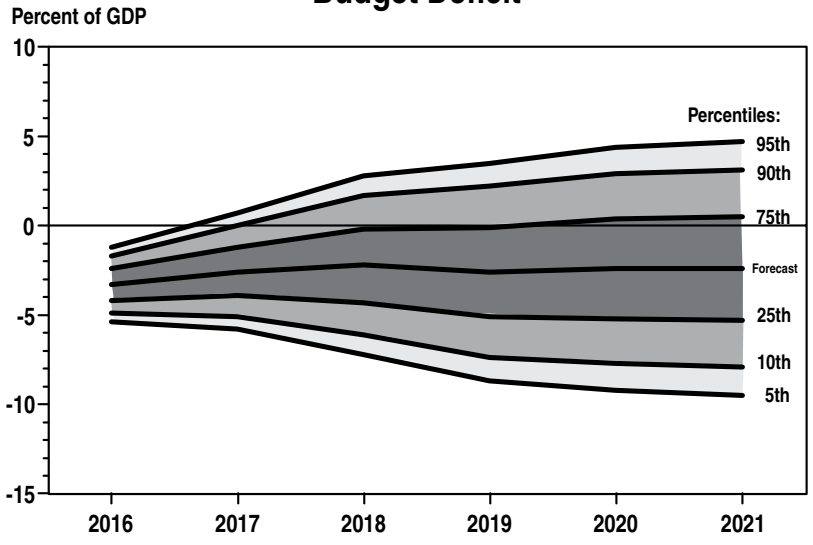
The middle panel of the table summarizes forecast errors in inflation, as measured by the GDP price index. All three forecasts have tended to project higher inflation than has actually transpired in this period, although on average, they have tended to miss by the same amount, at least at the two-year horizon. At the six-year horizon, the Administration's forecasts have tended to come closest to the actual inflation measure, while the Blue Chip panel, on average, has generally produced forecasts with much faster inflation than has actually occurred. The CBO's forecasts have generally fallen between the other two.

The bottom panel of the table provides a summary of forecast errors for the three-month Treasury bill interest rate. The average error of the Administration's forecast is smaller than that for CBO and the Blue Chip panel at both the two- and six-year horizons. In terms of the magnitude of absolute forecast errors at two years, the three forecasts have historically been comparable. In the medium term, the Administration's forecasts for interest rates have generally outperformed those of CBO and the Blue Chip panel, producing smaller errors by every metric.

Uncertainty and the Deficit Projections

The previous two sections demonstrate the sensitivity of the budget balance path to the actual realizations of macroeconomic variables and describe the uncertainty associated with the Administration's (and other) forecasts. It is helpful then to report the overall range of uncertainty surrounding the Administration's projections of the budget balance over the next few years. Table 2-6 summarizes past errors (since the 1986 budget year) in projecting the budget balance. The first column reports that past projections of the budget balance have tended to predict higher deficits (or lower surpluses) in the year the budget was published than actually occurred. That is, in the past, current year budget deficits have tended to be 0.8 percent of GDP lower than expected. This pattern reverses in subsequent years. Five years after the budget has been published, actual deficits have on average been 3 percentage points of GDP higher than expected

Chart 2-1. Range of Uncertainty for the Budget Deficit



at the time of publication. By taking the root mean squared errors of past budget forecasts at each horizon from the current year to five years later and assuming that these forecast errors are drawn from a normal distribution, it is possible to construct a probabilistic range of current year and future budget balances. Chart 2-1 contains this range. The middle line in the figure contains the Administration's projected budget balance. The other lines can be read in the following way. Consider the top line, which reports the 95th percentile outcome of the budget balance over the years 2016 to 2021. There is a 95 percent probability (based on past forecast errors) that the budget balance will be below this line in every year of the forecast window. That suggests that in 2016, there is a 95 percent chance of a deficit of magnitude greater than 1.2 percent of GDP. In 2021, there is a 95 percent chance that the budget surplus will be no greater than 4.7 percent. On the other hand, there is less than a 5 percent chance that the deficit will be greater than 9.5 percent percent in 2021.

Structural and Cyclical Deficits

The Federal Government's budget can act as a buffer for the U.S. economy in the face of both positive and negative deviations of growth from its trend. For example, when the economy is facing headwinds that impede economic activity, collections of tax receipts fall and spending on certain social insurance programs may rise. Specifically, if an especially large number of workers were to lose their jobs, overall spending on unemployment insurance benefits would increase, providing those unfortunate workers with the means to maintain a basic level of spending. On the other hand, during boom periods, government receipts will rise as firms and households earn more income and pay higher taxes. These budget functions are referred to in the economics profession as "automatic stabilizers," because they do not require special action on the part of policymakers to be implemented, being part of the natural reactions of the government's receipts and expenditures to macroeconomic changes. That is, they perform a smoothing role, ensuring that recessions do not become depressions and that expansions do not cause the economy to "overheat" and prices to rise excessively.

A side effect of these automatic stabilizers is that the headline budget surplus or deficit may not necessarily provide the best information on the overall fiscal stance of the Government. When the economy is in recession, tax receipts fall as households and businesses earn less and spending on social insurance rises to provide income smoothing, with the result being a larger fiscal deficit or smaller fiscal surplus than would have obtained had the economy been operating at full employment. Conversely, when the economy is very strong and growing faster than its potential, the deficit will look smaller or the surplus larger than it otherwise would. This part of the budget balance that fluctuates with the state of the economy is referred to as the cyclical component, while the part that does not is called the structural budget balance. It is this structural balance that provides greater information about the government's fiscal stance (i.e., whether it is operating an expansionary or contractionary fiscal policy).

Table 2-7 provides estimates of the structural and cyclical budget balances over the forecast window. These statistics are estimated by analyzing the historical relationships between indicators of the economy's health, such as the unemployment rate or the deviation of Gross Domestic Product from its potential level, and certain spending and revenue categories. Of course, the variables mentioned above are not the only influences on the cyclical response of the Federal Budget, and economists are still working to better identify the cyclical component of the budget balance. This incompleteness suggests that the cyclical portion of the budget balance might actually make up a larger share of the overall balance than reported in this table.

Notably, over the course of the forecast window, the cyclical component of the budget balance is projected to be fairly modest. This is because the unemployment rate is expected to be close to or below its natural rate over the next eleven years, indicating that the economy is likely to be operating near full employment and that the role of automatic stabilizers will be subdued. There is expected to be a cyclical deficit of about 0.1 percent of GDP in fiscal year 2016, followed by small cyclical surpluses from 2017 to 2021, as the unemployment rate dips below its natural rate. The Administration projects a gently fluctuating structural deficit until it reaches about 2.8 percent of GDP in 2026. For comparison, this is just slightly greater than the average fiscal deficit since World War II of about 2.1% of GDP and substantially lower than the deficit-to-GDP ratios averaging 9% seen in the aftermath of the global financial crisis. This suggests that the Administration's Budget will return the nation's fiscal balance to a broadly neutral and sustainable stance.

Table 2–7. THE STRUCTURAL BALANCE

(Fiscal Years; in Billions of Dollars)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Unadjusted Surplus (–) or Deficit (+)	483	438	616	504	454	549	534	552	660	677	650	741	793
Cyclical Component	164	53	12	–31	–17	–23	–14	–12	–4	–1	0	0	0
Structural Surplus (–) or Deficit (+)	319	385	604	535	471	572	548	564	664	678	650	741	793
(Fiscal Years; Percent of Gross Domestic Product)													
Unadjusted Surplus (–) or Deficit (+)	2.8	2.5	3.3	2.6	2.3	2.6	2.4	2.4	2.8	2.7	2.5	2.7	2.8
Cyclical Component	0.9	0.3	0.1	–0.2	–0.1	–0.1	–0.1	–0.1	0.0	0.0	0.0	0.0	0.0
Structural Surplus (–) or Deficit (+)	1.9	2.2	3.3	2.8	2.3	2.7	2.5	2.5	2.8	2.7	2.5	2.7	2.8
CHANGE IN STRUCTURAL DEFICIT (FISCAL DRAG)		**0.3**	**1.1**	**–0.5**	**–0.4**	**0.4**	**–0.2**	**0.0**	**0.3**	**–0.1**	**–0.2**	**0.2**	**0.1**

NOTE: The NAIRU is asssumed to be 4.9%. Sums may not add due to rounding.