

The Budgetary Implications of Higher Federal Reserve Board Interest Rates

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Executive Summary

The Federal Reserve Board (Fed) is widely expected to start raising interest rates some time in 2015. The purpose of higher interest rates is to slow the economy and prevent inflation. This is done by reducing the rate of job creation and thereby reducing the ability of workers to achieve wage gains. There has been considerable debate about the wisdom of raising interest rates in a context when the labor market still appears weak by many measures and when inflation is low and falling.

In addition to the macroeconomic considerations, it is also worth noting that the Fed's interest rate policy will have substantial budgetary impacts. The impact of interest rate hikes and lower growth will be felt at both the federal and state and local levels. This paper calculates the plausible size of these impacts by comparing the Congressional Budget Office (CBO) baselines against plausible alternative scenarios.

It points out:

- The budget surpluses of the Clinton years were only possible because the Fed allowed the unemployment rate to fall far below the level most economists thought was sustainable. If the Fed had raised interest rates enough to keep the unemployment rate from falling below 6.0 percent (as projected by CBO), the federal government would have run a large deficit in 2000, instead of a large surplus.
- Higher interest rates will directly lead to larger budget deficits. If the Fed were to keep interest rates near their current levels, so that the ratio of interest payments to debt did not change, the government would save \$2.868 trillion on interest over the 10-year budget horizon. This is a bit less than four times what the federal government is projected to spend on the Supplemental Nutrition Assistance Program (food stamps) over this period. If the Fed adopted a middle course, so the ratio of interest to debt rose to halfway between the 2015 and the projected baseline levels, the government would save \$1.481 trillion on interest over this 10-year period.
- The federal budget also benefits from the interest payments that the Fed refunds from the Treasury bonds and mortgage-backed securities it holds as part of its quantitative easing (QE) program. If the Fed were to hold enough bonds so that the amount of interest it refunded to the Treasury Department each year remained at its 2015 level, the cumulative budget savings over the 10-year horizon would be \$617 billion. In a middle scenario, in

which annual interest payments were halfway between the 2015 level and the projected baseline, the savings would be \$309 billion.

- If the Fed were to allow the unemployment rate to fall to 4.0 percent and remain at that level, it would lead to substantially higher tax revenue and reduced payments for unemployment benefits and other transfer programs. The cumulative difference over the 10-year budget horizon is nearly \$1.9 trillion, over two and a half times the projected cost of the food stamp program.
- The Fed's interest rate policy would also have large impacts on state and local budgets. If the unemployment rate were to remain at 4.0 percent instead of the 5.4 percent baseline, states could anticipate roughly 2.8 percent more revenue each year. In addition, they would see their annual payments for unemployment insurance fall by roughly 25 percent. The implied savings are substantial. In the case of California, for example, the combined benefit to the budget in 2016 would be more than \$6.3 billion. In Illinois it would be almost \$2 billion.

The Fed's main consideration in determining its interest rate policy should be the state of the labor market and the risks of inflation. However it is important to recognize that the Fed's decisions have substantial budgetary impacts. If the Fed were to sustain a policy that allowed the unemployment rate to fall back to the levels seen at the peak of the 1990s business cycle, the budget deficits would be considerably smaller than those currently projected and the debt-to-GDP ratio would be falling.

Introduction

Most observers expect the Federal Reserve Board to raise interest rates at some point in the next year. The debate over this decision has centered on its impact on growth and employment. The purpose of raising interest rates is to slow the economy and prevent the labor market from getting too strong, out of a fear that this will generate inflationary pressure. Therefore it is appropriate that labor market conditions should be the focus of debate over Fed policy.

It is also worth noting that the Fed's policy will have a very substantial impact on the budget and budget deficit. There are two ways in which Fed policy will affect the deficit. The first is the direct effect of interest rates on the deficit. The reason the Congressional Budget Office (CBO) projects that deficits are projected to rise toward the end of its 10-year budget horizon is that it expects interest rates to be substantially higher after 2020 than they are today.¹ As a result, interest payments on the debt are projected to rise from 1.3 percent of GDP in 2015 to 3.0 percent of GDP by 2024. Almost all of this increase is due to higher interest rates, as the debt-to-GDP ratio in 2024 is projected to be only slightly higher than the 2015 level. In short, if the Fed decides to raise interest rates as CBO assumes, it will lead to substantially larger deficits than if interest rates were to stay near current levels.

The second way in which the Fed's decision on interest rates affects the deficit is indirect, through the impact of interest rates on employment and growth. If the Fed raises interest rates and slows the economy, then the government will collect less money in tax revenue. In addition, it will pay out more money in unemployment benefits, food stamps, and other income-related transfers. As a result, deficits would be higher than if the Fed allowed the economy to grow faster and the unemployment rate to fall further. This indirect effect can be substantial. The reason that the government ran surpluses at the end of the 1990s, instead of the deficits that had been projected by CBO just a few years earlier, was that the Fed allowed the unemployment rate to fall to 4.0 percent as a year-round average in 2000, rather than raising interest rates to keep it at the 6.0 percent level that had been projected for 2000 by CBO in 1996.

This paper explores the potential impact of the Fed's decision on interest rates on the budget deficit. The first part recounts the history of the 1990s surplus, correcting the widely held misunderstanding that this surplus was achieved by the Clinton administration's tax increases and spending cuts. The second part examines the direct and indirect impact of Fed rate hikes on the federal budget deficit. The third part examines the impact of Fed rate hikes on state budgets.

¹ Congressional Budget Office, 2015. The Budget and Economic Outlook, 2015-2025, Washington, DC: Congressional Budget Office, Table 1-1.

Full Employment: The Real Story of the Clinton Era Budget Surpluses

There is a widely held view that the secret to the strong growth of the 1990s was the decision by the Clinton administration to take the “tough steps” needed to balance the budget. The argument goes that Clinton raised taxes and cut spending. Both decisions caused economic and political pain, but the lower deficits and later surpluses that resulted from these measures allowed for the strong growth and low unemployment at the end of the decade.

This is a badly distorted view of what actually happened in the 1990s. While the tax increases and budget cuts that Clinton put in place in 1993, supplemented with additional cuts demanded by the Gingrich Congress, did reduce the deficit, they did not come close to balancing the budget. This can be seen by examining CBO projections from May of 1996. These projections are useful because they were made after all the tax increases and spending cuts were already written into law. CBO incorporated the expected effects of these measures in its projections.

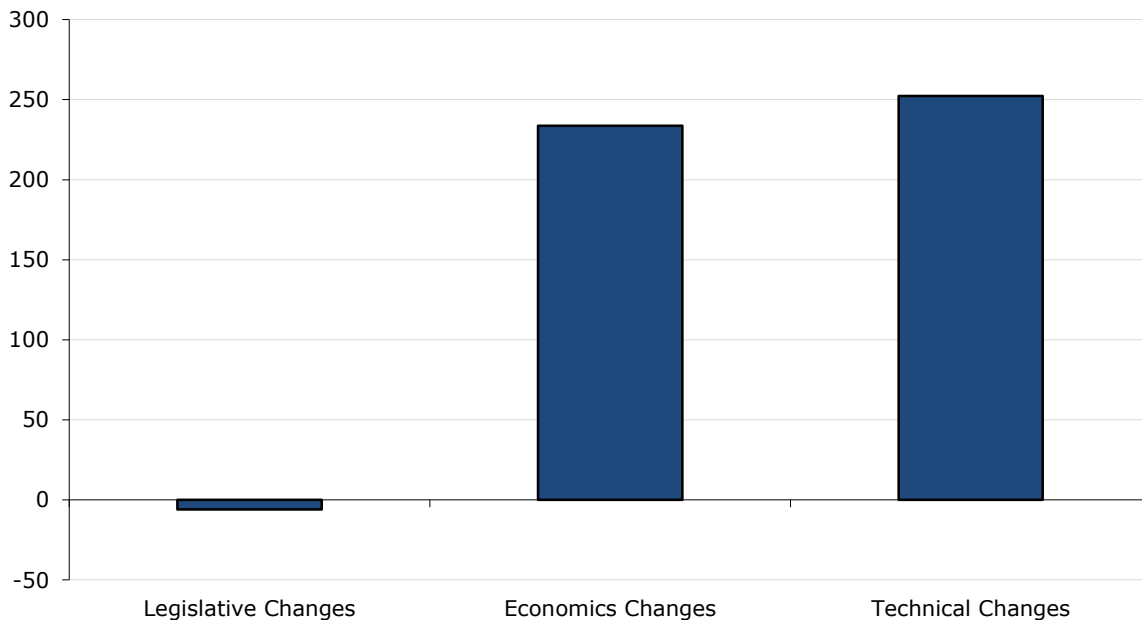
In 1996, CBO projected that there would be still be a substantial deficit in 2000. It projected a \$244 billion deficit for 2000, or 2.7 percent of GDP. It turned out that we actually ran a surplus in 2000 of \$232 billion, or roughly 2.4 percent of actual GDP in 2000, which was substantially higher than the GDP projected in 1996. This involves a shift from deficit to surplus of \$476 billion, or 5.1 percentage points of GDP. This would be equivalent to reducing the annual deficit by \$920 billion in 2015.

This shift is not explained by additional tax increases and spending cuts in the years between 1996 and 2000. In fact, according to CBO’s assessment, the tax and spending changes over this period actually made the deficit slightly larger, as seen in **Figure 1**.

FIGURE 1

The Source of Changes in CBO Projections for Fiscal Year 2000 (projections from 1996-2000)

(billions of dollars)



Source: Congressional Budget Office and author's calculations.

As the chart shows, all of the reduction in the budget deficit between 1996 and 2000 was due to the fact that the economy performed much better than expected and that CBO had been overly pessimistic about trends in government spending and tax collections.² So, we did not actually move from large deficits to surpluses by tax increases and/or spending cuts; we did it through a strong economy and some good luck with tax collections and the cost of government programs. But the biggest part of this picture is that Alan Greenspan ignored the orthodoxy in the economics profession and allowed the unemployment rate to decline by almost 2 percentage points below the conventionally accepted estimates of the non-accelerating inflation rate of unemployment (NAIRU).

This point is crucial. CBO projected that the unemployment rate would be 6.0 percent in 2000 because that was its projection of the NAIRU. CBO was not an outlier; its 1996 estimate of the NAIRU was very near the center of the projections made by economists at the time. Greenspan had to argue with other governors of the Federal Reserve Board (including Janet Yellen, who was a member of the board of governors at the time) in order to keep interest rates low and allow the

² The technical changes were primarily an unexpected increase in the ratio of tax revenue to GDP. The largest source of the additional tax revenues was an increase in capital gains taxes due to the stock bubble.

unemployment rate to fall. These other governors accepted the orthodox view that an unemployment rate below 6.0 percent would lead to spiraling inflation.³

If Greenspan had not prevailed, and the Fed had raised interest rates to slow growth, as advocated by most mainstream economists, we never would have seen the late 1990s boom. The Fed's interest rate hikes would have prevented the unemployment rate from falling much below 6.0 percent. This would have prevented the labor market from tightening to the point where workers at the middle and bottom of the wage distribution could see substantial real wage gains.⁴ And it would have meant that we never would have seen the budget surpluses in the last years of the Clinton administration.

The Impact of Federal Reserve Board Rate Hikes on the Federal Budget

If the Federal Reserve Board follows a path of interest rate hikes along the lines projected by CBO and most other forecasters, it will mean substantially larger deficits than if it holds interest rates near their current levels. This is due to the fact that higher interest rates will increase the amount of interest that the government will have to pay on its debt. Furthermore, there is a cascading effect with higher interest rates leading to larger deficits and therefore more debt in future years. The impact of this effect is limited in CBO's 10-year budget horizon but would be more consequential over a longer time horizon.

3 This dispute is discussed in "Slate of Nominees is Clue to Obama's Plans for the Fed," New York Times, May 1, 2010. [<http://www.nytimes.com/2010/05/02/business/02fed.html>].

4 The relationship between the unemployment rate and real wage growth for those at the middle and bottom of the wage distribution is discussed in Baker, Dean and Jared Bernstein, *Getting Back to Full Employment: A Better Bargain for Working People*, 2013. Washington, DC: Center for Economic and Policy Research, [<http://www.cepr.net/index.php/publications/books/getting-back-to-full-employment-a-better-bargain-for-working-people>].

TABLE 1a**CBO Projections of Interest Payments and Debt**

(billions of dollars)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Net interest baseline	229	227	276	332	410	480	548	606	664	722	777	827
Net interest adjusted	229	227	237	246	254	262	271	280	290	301	311	321
Middle Scenario	229	227	256	289	332	370	408	439	471	503	533	560
Debt baseline	12,779	13,359	13,905	14,466	15,068	15,782	16,580	17,451	18,453	19,458	20,463	21,605
Debt adjusted	12,779	13,359	13,866	14,341	14,788	15,284	15,804	16,350	16,977	17,561	18,101	18,737
Middle Scenario	12,779	13,359	13,886	14,404	14,928	15,531	16,189	16,893	17,702	18,488	19,250	20,124

Savings

Source: CBO and author's calculations.

TABLE 1b**CBO Projections of Interest Payments and Debt**

(percent shares of GDP)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Net interest baseline	1.3	1.3	1.5	1.7	2.0	2.2	2.5	2.6	2.7	2.9	3.0	3.0
Net interest adjusted	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Middle Scenario	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.9	2.0	2.0	2.0
Debt baseline	74.1	74.2	73.8	73.4	73.3	73.7	74.3	75.0	76.1	76.9	77.7	78.7
Debt adjusted	74.1	74.2	73.6	72.8	71.9	71.4	70.8	70.3	70.0	69.4	68.7	68.2
Middle Scenario	74.1	74.2	73.7	73.1	72.6	72.6	72.5	72.6	73.0	73.1	73.0	73.3

Source: CBO and author's calculations.

Table 1a and **1b** show three sets of budget projections.⁵ The top row is the CBO baseline taken from the most recent projections. It shows a rapid rise in annual interest payments from \$227 billion in 2015 to \$827 billion in 2025. Measured as a share of GDP, interest payments rise from 1.3 percent in the current fiscal year to 3.0 percent in 2025. This increase in interest payments is projected to lead to a modest increase in the ratio of debt to GDP, from 74.2 percent at present to 78.7 percent in 2025.

5 Congressional Budget Office, Budget and Economic Outlook: 2015-2025, Washington, DC: Congressional Budget Office [<http://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf>] (Table 1-2).

The second row shows a scenario in which the ratio of interest payments to GDP is assumed to remain constant over the 10-year budget horizon.⁶ In this case, annual interest payments rise to only \$321 billion at the end of the budget horizon in 2025. As a share of GDP, interest payments drift down to 1.2 percent. In this scenario, the debt-to-GDP ratio edges down slightly to 68.2 percent by the end of the period.

The third row shows an intermediate scenario in which the ratio of annual interest payments to debt rises by half as much as in the baseline scenario. In this case, annual interest payments rise to \$560 billion by the end of the budget period, or 2.0 percent of GDP. The debt-to-GDP ratio changes little over the projection period, hitting 73.3 percent in 2025, less than a percentage point below the current level.

As can be seen, the difference in interest rate assumptions has a substantial impact on projected deficits over this period. In the extreme case, the gap between the baseline assumptions and the constant interest-to-debt ratio shown in row 2 translates into an increase in cumulative deficits of \$2.868 trillion over the 10-year budget horizon. This is more than just under four times what the federal government is projected to spend on food stamps over this period.⁷

The middle scenario shown in row 3 would lead to cumulative savings of \$1.481 trillion over this 10-year period. This is almost twice the projected spending on food stamps over the next ten years. In short, the potential budgetary savings from lower-than-projected interest rates are substantial.

Federal Reserve Board Asset Holdings

There is another channel through which Fed policies will directly affect the budget deficit. After covering its operating expenses and paying dividends to member banks, the Federal Reserve Board refunds the rest of its earnings back to the Treasury Department. Usually, this is a relatively small sum (between 0.1-0.2 percent of GDP); however, the size of these refunds increased enormously during the downturn as a result of the Fed's quantitative easing (QE) programs. Under these programs the Fed accumulated several trillion dollars of mortgage-backed securities and long-term

6 This is slightly different from an assumption that interest rates do not change. The government has long-term bonds that will come due in the next decade. These bonds generally carried higher interest rates than current market levels. If the bonds coming due were replaced with bonds of the same duration, it would imply a drop in the interest burden. Therefore the assumption of a constant ratio of interest payments to debt implies some rise in market interest rates from their current levels.

7 CBO projects the federal government will spend \$747 billion on food stamps over the 10-year budget horizon, Table 3-2.

government debt.⁸ The interest on these assets increased the Fed’s earnings and, therefore, its payments to the Treasury. CBO projects that the Fed will refund \$102 billion to the Treasury in 2015.

This figure is projected to fall sharply over the next decade, as the CBO projections assume that the Fed will unwind its QE programs by gradually selling off assets or not replacing bonds after they reach their expiration dates. The first line of **Table 2** shows CBO’s projections for remittances from the Fed. As can be seen, they fall quickly from \$102 billion in 2015 to \$17 billion in 2018. They then rise gradually, hitting \$52 billion in 2025, which is a bit less than 0.2 percent of projected GDP in that year.

TABLE 2
CBO Projections of Federal Reserve Board Remittances to Treasury
 (billions of dollars)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total 2016- 2025	Savings
Baseline	99	102	76	40	17	27	31	34	37	42	47	52	403	0
Constant Holdings	n.a.	102	102	102	102	102	102	102	102	102	102	102	1020	617
Middle scenario	n.a.	102	89	71	60	65	67	68	70	72	75	77	712	309

Source: CBO 2015, Table 4-1 and author’s calculations.

The second row in Table 2 shows a scenario in which the size of remittances remains constant at \$102 billion over the 10-year budget horizon. The third line shows a middle scenario in which remittances are half way between the baseline scenario and the constant remittances scenario. The cumulative budget savings over the 10-year horizon in the constant remittances scenario, compared with the baseline, are \$617 billion. In the middle scenario, the savings would be \$309 billion. Measured against the cost of the food stamp program, the constant remittance scenario would save an amount that is more 80 percent of the projected 10-year cost of the program. The middle scenario would save an amount that is over 40 percent of the projected cost.

CBO assumes that the Fed will unwind its QE programs in order to avoid over-stimulating the economy. The idea is that it will want to put upward pressure on interest rates by selling the long-term debt that it now holds. The Fed will have less reason to go this route if it continues to believe that the economy needs additional stimulus through this period. Also, it is worth noting that the Fed has other tools to accomplish the same end, most notably raising the reserve requirements on bank deposits, a tool frequently employed by China’s central bank.

⁸ The Fed’s balance sheet expanded from less than \$1 trillion in 2007 before the crisis to more than \$4.5 trillion by the middle of February 2015 [http://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm].

CBO's projections for the Fed's asset holdings may prove to be correct, and the Fed may be right in a belief that this policy is necessary to prevent an unacceptable rise in the inflation rate. However, it is worth noting that the decision to sell off assets will lead to lower remittances from the Fed and, therefore, larger budget deficits.

The Indirect Effect of Fed Monetary Policy on the Federal Budget Deficit

In addition to the direct effect of Fed monetary policy on the budget deficit, there is also an indirect effect from keeping the unemployment rate higher and GDP lower than they would otherwise be. With lower rates of unemployment, the government would pay out less money in unemployment benefits, food stamps, and other transfers. It would also collect more money in taxes. The combined effect of lower transfer payments and higher tax revenue would net the government roughly 25 cents per each additional dollar in GDP in lower budget deficits.

The extent to which Fed policy is unnecessarily raising the unemployment rate and slowing growth depends on what the economy's actual limits are. Presumably the Fed will be targeting its rate increases in accordance with its perception of the economy's limits. If it is correct in its assessment, then its interest rate hikes will not be imposing a cost in the form of higher unemployment and slower growth. However, if the economy can sustain a rate of unemployment lower than what the Fed believes, then its actions will be needlessly preventing people from getting jobs and curtailing the growth of the economy. It will also be adding to the budget deficit.

TABLE 3a**The Impact of Higher Growth on the Deficit**

(billions of dollars)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
GDP													
baseline	18016	18832	19701	20558	21404	22315	23271	24261	25287	26352	27456		
GDP													
adjusted	18016	19359	20253	21134	22003	22939	23923	24941	25995	27090	28224		
												Cumulative	Savings
Deficit													
baseline	-468	-467	-489	-540	-652	-739	-814	-948	-953	-951	-1088	-7641	0
Deficit													
adjusted	-468	-335	-348	-388	-489	-563	-623	-742	-731	-711	-830	-5759	1882
Interest													
baseline	227	276	332	410	480	548	606	664	722	777	827		
Interest													
adjusted	227	276	329	402	467	528	578	628	677	722	761		
Debt													
baseline	13359	13905	14466	15068	15782	16580	17451	18453	19458	20463	21605		
Debt													
adjusted	13359	13773	14193	14644	15194	15816	16495	17291	18074	18840	19724		

Source: CBO and author's calculations.

TABLE 3b**The Impact of Higher Growth on the Deficit**

(percent shares of GDP)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Deficit baseline	-2.6	-2.5	-2.5	-2.6	-3.0	-3.3	-3.5	-3.9	-3.8	-3.6	-4.0
Deficit adjusted	-2.6	-1.7	-1.7	-1.8	-2.2	-2.5	-2.6	-3.0	-2.8	-2.6	-2.9
Interest baseline	1.3	1.5	1.7	2.0	2.2	2.5	2.6	2.7	2.9	3.0	3.0
Interest adjusted	1.3	1.4	1.6	1.9	2.1	2.3	2.4	2.5	2.6	2.7	2.7
Debt baseline	74.2	73.8	73.4	73.3	73.7	74.3	75.0	76.1	76.9	77.7	78.7
Debt adjusted	74.2	71.1	70.1	69.3	69.1	68.9	69.0	69.3	69.5	69.5	69.9

Source: CBO and author's calculations.

Table 3a shows the impact of a scenario in which the Fed targets a 5.4 percent unemployment rate (the average unemployment rate in the CBO projections) in a context where the economy could sustain an unemployment rate of 4.0 percent. Using an estimate of Okun's Law, that a 1.0 percentage point drop in the unemployment rate is associated with a 2.0 percent rise in output, the table assumes GDP would be 2.8 percent higher in 2016 and subsequent years. The table assumes that the deficit is reduced by 25 percent of this amount, as a result of higher tax collections and lower transfer payments. In 2017 and after, the table assumes that interest payments are reduced in proportion to the debt as of the end of the prior year.

The more rapid growth and lower unemployment substantially reduce the projected deficit over the budget horizon. In 2020, the gap between the low unemployment scenario and the baseline

projection is \$176 billion. In 2025, the difference in the projected deficit is \$258 billion. The cumulative difference over the 10-year budget horizon is almost \$1.9 trillion, about two and a half times the projected cost of the food stamp program.

The differences are even larger when considered as a share of GDP, since GDP is assumed to be somewhat higher in the low unemployment scenario. The projected deficit is 2.9 percent of GDP in 2025 in the low unemployment scenario, compared to 4.0 percent in the baseline scenario. While the ratio of debt to GDP rises modestly in the baseline scenario, it falls from 74.2 percent of GDP in 2015 to 69.9 percent in 2025 in the low unemployment scenario.

The differences in deficit projections in Tables 3a and **3b** indicate the large effect that a lower unemployment rate can have on the deficit. In some ways, the low unemployment scenario is optimistic since it assumes that the unemployment rate will average 4.0 percent over a lengthy period, effectively precluding the possibility of a recession. However, there are also reasons to think it might understate the impact of more expansionary Fed policy. Most obviously, it includes CBO's baseline interest rate assumptions instead of a somewhat lower path, which would presumably be necessary to reach and sustain a lower unemployment rate.⁹ While there would be a considerable degree of uncertainty about the exact impact, there can be little doubt that if the economy can sustain a substantially lower unemployment rate than is currently assumed by CBO, the deficits in future years will be considerably smaller.

9 It is also worth noting that with such a large number of people having dropped out of the labor force since the onset of the recession, GDP may rise by more than 2 percentage points for each percentage point drop in the unemployment rate (the standard Okun relationship) as many recent dropouts re-enter the labor market.

The Impact of Lower Unemployment on State Budgets

In addition to reducing the federal budget deficit, a lower unemployment rate will improve the budget picture at the state level as well. Most obviously, if GDP is higher, state tax revenues will also be higher. In addition, state governments will also pay out less money for unemployment insurance and other transfer payments. The net effect is that a substantial amount of money should be freed up for other purposes.

Table 4 shows the projected impact on state budgets of sustaining an unemployment rate of 4.0 percent rather than 5.4 percent for 2016.¹⁰ The first column shows the baseline revenue for 2016.¹¹ The second column shows the revenue in the low unemployment (LU) scenario, which assumes that the state's revenue will be 2.8 percent higher as a result of the lower rate of unemployment. The third column shows the current projection for state unemployment benefits. The fourth column shows projected unemployment benefits, assuming the LU scenario's unemployment rate of 4.0 percent, or 25.9 percent lower than the 5.4 percent baseline assumption.¹² The fifth column shows the total savings for 2016, summing the additional revenue and the drop in unemployment insurance payments.

10 Data on state government revenue comes from the Nelson A. Rockefeller Institute of Government. Their data are drawn from the U.S. Census Bureau's Quarterly Summary of State and Local Tax Revenue. Data is available at: http://www.rockinst.org/government_finance/revenue_data.aspx. Data on unemployment insurance spending comes from the U.S. Department of Labor's Employment and Training Administration. Quarterly data can be found at: <http://workforcesecurity.doleta.gov/unemploy/content/data.asp>.

11 This is calculated by using the actual revenue for the fourth quarter of 2013 through the third quarter of 2014 and multiplying by 1.16, the ratio that the Congressional Budget Office projects for federal revenue in 2016 to federal tax revenue for the most recent four quarter period for which data was available (CBO 2015, Table 1-1). The baseline for unemployment insurance benefits in 2016 is constructed the same way.

12 This may exaggerate the impact on unemployment benefits, since the drop in benefit payments will likely not be proportional to the drop in the unemployment rate. However it is still likely to grossly understate the savings to state governments, since they will be paying out considerably less money in other means-tested benefits. There will of course be large variations across states.

TABLE 4**The Impact of Low Unemployment on State Budgets in 2016**

(millions of dollars)

	Revenue		Unemployment		Total Savings
	2016 Baseline	2016 LU	2016 Baseline	2016 LU	
Alabama	10,443.3	10,735.7	297.8	220.6	369.6
Alaska	3,122.1	3,209.6	174.5	129.2	132.7
Arizona	14,744.7	15,157.6	403.5	298.9	517.5
Arkansas	10,351.6	10,641.4	306.2	226.8	369.2
California	163,366.2	167,940.5	6,939.6	5,140.4	6,373.4
Colorado	13,963.9	14,354.9	605.8	448.7	548.1
Connecticut	18,438.7	18,955.0	872.1	646.0	742.4
Delaware	3,855.2	3,963.1	106.6	79.0	135.6
Florida	43,713.1	44,937.1	977.1	723.8	1,477.3
Georgia	21,289.7	21,885.8	636.5	471.5	761.1
Hawaii	7,033.3	7,230.3	227.7	168.7	256.0
Idaho	4,257.7	4,376.9	145.8	108.0	157.0
Illinois	46,479.3	47,780.7	2,491.8	1,845.8	1,947.5
Indiana	19,816.0	20,370.9	533.1	394.9	693.0
Iowa	9,034.0	9,286.9	453.8	336.1	370.6
Kansas	8,580.8	8,821.0	357.5	264.8	332.9
Kentucky	12,754.2	13,111.3	442.3	327.7	471.8
Louisiana	11,648.9	11,975.0	201.7	149.4	378.5
Maine	4,504.2	4,630.3	171.6	127.1	170.6
Maryland	21,986.6	22,602.2	808.5	598.9	825.2
Massachusetts	28,968.7	29,779.8	1,957.3	1,449.9	1,318.6
Michigan	29,057.4	29,871.1	1,167.0	864.5	1,116.2
Minnesota	27,213.4	27,975.3	957.4	709.2	1,010.2
Mississippi	8,796.3	9,042.5	175.6	130.0	291.8
Missouri	13,134.7	13,502.4	482.1	357.1	492.8
Montana	3,102.1	3,188.9	124.5	92.3	119.1
Nebraska	5,769.6	5,931.1	121.0	89.6	192.9
Nevada	8,254.6	8,485.8	469.6	347.8	352.9
New Hampshire	2,624.4	2,697.9	101.3	75.0	99.7
New Jersey	34,590.0	35,558.6	2,694.6	1,996.0	1,667.1
New Mexico	6,954.9	7,149.6	245.9	182.2	258.5
New York	87,674.0	90,128.9	3,206.0	2,374.8	3,286.1
North Carolina	26,673.9	27,420.8	613.9	454.7	906.0
North Dakota	7,385.9	7,592.7	102.5	75.9	233.4
Ohio	31,397.6	32,276.8	1,252.7	927.9	1,203.9
Oklahoma	10,612.9	10,910.1	271.7	201.2	367.6
Oregon	11,230.2	11,544.6	664.0	491.9	486.6
Pennsylvania	39,978.1	41,097.5	2,796.2	2,071.2	1,844.3
Rhode Island	3,465.9	3,563.0	221.3	163.9	154.4
South Carolina	10,220.2	10,506.4	223.6	165.7	344.1
South Dakota	1,868.9	1,921.3	30.1	22.3	60.1
Tennessee	14,961.9	15,380.8	396.7	293.8	521.8
Texas	64,234.1	66,032.7	2,653.0	1,965.2	2,486.4
Utah	7,401.8	7,609.1	231.0	171.1	267.1
Vermont	3,441.8	3,538.2	93.3	69.1	120.6
Virginia	22,234.7	22,857.3	596.6	441.9	777.2
Washington	22,669.2	23,303.9	1,240.9	919.2	956.4
West Virginia	6,249.6	6,424.6	247.2	183.1	239.1
Wisconsin	18,862.4	19,390.5	851.5	630.7	748.9
Wyoming	2,679.1	2,754.1	77.1	57.1	95.0

Source: State government revenue from the Nelson A. Rockefeller Institute of Government; unemployment data from U.S. Department of Labor's Employment and Training Administration; and author's calculations.

As can be seen, the budgetary implications of sustaining a 4.0 percent rate of unemployment, rather than the 5.4 percent baseline, could be substantial. In the case of California, for example, the higher level of output would lead to \$4.57 billion in additional tax revenue in 2016 and savings of \$1.80 billion in transfer payments, for total savings of \$6.37 billion. In Illinois, the total savings would be \$1.95 billion in 2016. In short, lower unemployment would substantially improve state budgets.

Conclusion

Most discussion of Federal Reserve Board policy centers on its impacts on unemployment, inflation, and economic growth. This is appropriate since these issues are enormously important to the public's well-being. However, Fed policy also has a large impact on public budgets. This impact tends to be overlooked, or even altogether ignored, in debates on Fed policy. This paper shows that plausible alternative paths for interest rates and unemployment can have large impacts on the federal and state budgets.

A policy that keeps interest rates near current levels could reduce cumulative federal deficits by almost \$2.9 trillion over the next decade. A path of interest rate hikes that is more modest than assumed in the CBO baseline would still reduce projected deficits by more than \$1.4 trillion over this period. Similarly, if the economy could return to the 4.0 percent unemployment rate of 2000, the projections in this paper show that the debt-to-GDP ratio would fall by 4.3 percentage points over the next decade, rather than rising by 4.5 percentage points as shown in the CBO baseline. Finally, state governments can anticipate a considerably brighter budget picture if the Fed allows the unemployment rate to drop to 4.0 percent and stay near that level.

The Fed's monetary policy should be based primarily on its assessment of the state of the economy. But since there is a great deal of uncertainty about the economy's potential and the degree of tightness in the labor market, it is certainly appropriate to weigh the relative costs and benefits in erring too tightly or too loosely. The calculations in this paper show that erring on the side of an overly tight monetary policy, which keeps millions of people from getting jobs and tens of millions from seeing wage growth, also has the effect of making the budget picture more difficult at all levels of government. This should be a factor the Fed considers in designing its policy.