What would Sanders do? Estimating the economic impact of Sanders programs

Gerald Friedman
Professor of Economics
University of Massachusetts at Amherst
Amherst, MA. 01003
gfriedma@econs.umass.edu
@gfriedma
January 28, 2016
Draft: Not to be cited or circulated without permission

I am grateful to Brian Hall and Mark Paul for research assistance and to Kate Bronfenbrenner, Richard Freeman, Rosa Friedman, Michael Hilliard, Eric Hoyt, Debra Jacobson, Stephanie Kelton, Mark Paul, and Jeannette Wicks-Lim for advice and comments. Warren Gunnels and Steve Wamhoff on Senator Sanders' staff provided technical assistance in interpreting the Senator's program but this work was done independently of the Sanders campaign. Mistakes, alas, remain my own.

Executive Summary

The economic proposals of Senator Sanders can be grouped under three headings. First, he proposes spending programs for infrastructure, education, retirement security, health care, and to address the threat of climate change. Second, there are progressive tax increases to pay for these programs, and lastly there are regulatory changes to raise wages and to reduce discrimination against women. In sum, these programs will increase economic growth and employment, reduce poverty and inequality, and balance the federal budget.

The Sanders economic policy will achieve broad-based and sustained prosperity with the following:

- The growth rate of the real gross domestic product will rise from 2.1% per annum to 5.3% so that real GDP per capita will be over $20,000 higher in 2026 than is projected under the current policy
- Faster economic growth and redistributive taxation will raise the growth rate of median income from 0.8% per annum to 3.5%, adding nearly $22,000 to median household income in 2026
- Higher GDP comes with increased employment, specifically nearly 26 million additional jobs in 2026
- The unemployment rate will fall to 3.8% by the end of the first Sanders term in 2021, and remain at that full employment level through the end of his second term in 2025
- High employment will raise the growth rate in output per worker (labor productivity), which will double to over 3% per annum
- There will be sustained increases in real wages for the first time since the 1960s, with real wages growing at a rate of nearly 2.5% per annum
- Medicare-for-all will lower the cost of health care and contain health care inflation even while saving thousands of lives by extending insurance coverage and access to health care to all Americans
- Rising employment, increases in the minimum wage, and enhancements to social security will lower the poverty rate to 6%, the lowest recorded rate, and the poverty rate for children will fall by nearly half, to below 11%
- The gap between rich and poor will narrow dramatically, with the ratio of the average income of the top 5% to that of the bottom 20% falling from 27.5 to 10.1.
- After increasing in the first years of the Sanders Administration, the Federal budget's cash deficit will drop sharply and there will be a significant and growing surplus in a Sanders second term. Instead of a deficit of $1.3 trillion in 2026, there will be a large budget surplus.

Table of Contents

Tables and Figures

Senator Sanders' program for prosperity

Senator Sanders has an ambitious program designed to bring "broadly-shared prosperity" back to the United States.[1] His program includes the two dozen distinct proposals explored in this report.[2] These are listed in Tables 1-3.[3]

Spending programs are designed to increase employment, investment in physical infrastructure, and human capital, and to protect the income of disabled and elderly Americans through increases in Social Security benefits and measures to secure the real value of those benefits and private pensions. These are summarized in Table 1.

Table 1. Sanders program for broadly-shared prosperity: additional federal spending

Program	10 Year fiscal impact ($billions)	
Rebuild America Act	**$**	**1,000**
Employ Young Americans Now	$	6
Social Security benefits increase	$	491
Social Security indexation	$	25
Protect Private Pensions	$	29
College for All	$	750
Paid Family and Medical Leave	$	320
Climate change, energy efficiency, climate resiliency, clean energy worker transition[4]	$	1,198
Medicare for All	$	10,682[5]
Total over 10 years:	$	14,500

The spending programs are more than funded through changes in the tax code designed to secure the Federal Government's financial position by restoring some of the progressivity lost through regressive tax

---

[1] Bernie Sanders, "SENATOR BERNIE SANDERS' PLAN FOR A BROADLY-SHARED PROSPERITY," August 15, 2015; Bernard Sanders, "Bernie Sanders Has a Plan to Pay for His Plans to Rebuild the Middle Class," n.d.; Bernard Sanders, "S.1782 - 113th Congress (2013-2014): American Health Security Act of 2013," legislation, (December 9, 2013), https://www.congress.gov/bill/113th-congress/senate-bill/1782; Bernard Sanders, "S.731 - 114th Congress (2015-2016): Social Security Expansion Act," legislation, (March 12, 2015), https://www.congress.gov/bill/114th-congress/senate-bill/731.

[2] The major proposals *not* included here are for campaign finance reform, including some public funding of campaigns, and a measure to break up banks deemed "too-big-to-fail." Both measures should increase prosperity and reduce inequality in the long-run. Campaign finance reform should reduce the economic cost of political rents and monopolies created through manipulation of the political process. Reducing the size and monopolistic reach of large banks should lower interest rates, for smaller businesses especially, but also over all by reducing the risk premium for systemic threats to the financial system.

[3] No estimate is made of the economic implications of reform of federal election funding. I have previously analyzed the economic implications of a single-payer program like that proposed by Senator Sanders; see "Friedman Analysis of HR 676: Medicare for All Would Save Billions - PNHP's Official Blog," accessed January 24, 2014, http://pnhp.org/blog/2013/07/31/friedman-analysis-of-hr-676-medicare-for-all-would-save-billions/.

[4] This includes the direct rebate to the public of carbon tax revenues for the bottom 83% of households.

[5] This is net of reductions in tax expenditures of $3.1 trillion over 10 years. Total program cost is $13,773.

changes over the past 40 years. These are summarized in Table 2. By itself, the revenue program would generate more than sufficient revenue to balance the cost of the spending program.[6] As is demonstrated below, the balance of revenue and spending programs will increase employment and economic growth because the spending program has a larger fiscal multiplier than do progressive tax increases.[7]

Table 2. Revenue enhancements in Sanders program and 10 year impact ($billions)

Program		10 Year fiscal impact ($billions)
Corporate Tax Dodging Prevention Act	$	1,000
Progressive Estate Tax	$	214
2.2% income-based premium on households	$	2,100
Financial Transactions Tax	$	750
Payroll tax increase of 0.2% (on employers and employees) to pay for Family Leave	$	339
Closing loopholes in Estate Tax and for artwork	$	29
End Polluter Welfare by ending tax breaks and subsidies for fossil fuel	$	135
Raising cap on Social Security payroll tax and extending Social Security tax to dividend and capital gains income for high-income households	$	1,692
Carbon tax	$	1,100
6.2% Payroll Tax on Employers	$	6,300
Progressive Taxes on the Top 2%	$	2,168
Total	$	15,828

Senator Sanders also proposes a variety of changes in regulatory policy largely designed to promote workplace equity and reduce poverty among working Americans. Overall, they will raise wages in 2026 by nearly 20% beyond the wage increases that will come with economic growth and increased employment. They will also raise national income by encouraging higher productivity and by increasing effective demand through the progressive redistribution of corporate profits. In particular, the Medicare-

[6] The budgetary impact is more positive than this because much of the spending is offset by reductions in current spending and in tax expenditures. The Medicare-for-All program, for example, generates an additional $3 trillion in revenue over the next decade by eliminating private health insurance and its associated tax deduction. for Treasury of the United States, “Tax Expenditures FY2015” (Washington, D. C.: Executive Office of the President, January 2015), http://www.treasury.gov/resource-center/tax-policy/Documents/Tax-Expenditures-FY2015.pdf.

[7] Congressional Budget Office, “How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy” (Washington, D. C.: Congressional Budget Office, November 2014), https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf.

for-All universal health program will raise wages by 9.6% by allowing workers to keep as wages some of what they and their employer have been spending on health insurance premiums.[8]

Table 3. Sanders regulatory proposals and approximate impact on wages in 2026.

Program	Percentage Change in Wage Income, 2026
Workplace Democracy Act	0.4%
$15 Minimum wage by 2020	5.3%
Paycheck Fairness	1.5%
Overtime protection	0.7%
Faster economic growth	6.6%
Medicare-for-All	9.6%
Wage increase, 2026, from Sanders program	24.1%

The macroeconomic impact of Senator Sanders' program

With nearly $14.5 trillion in additional spending over 10 years, the Sanders spending program is a significant stimulus to an economy that continues to underperform, with national income and employment at levels well below capacity.[9] Apart from the health care program, the annual stimulus provided by this spending is comparable to that of the American Recovery and Reinvestment Act, widely seen as responsible for creating over two million jobs annually and helping to prevent another Great Depression.[10] By shifting income from the rich to working people and the middle class, the regulatory

[8] This 10.9% is net of what workers would pay in increased payroll taxes to help fund the program. Note that this assumes that, by 2026, competition to attract workers will have forced employers to pay out in wages all of the compensation they would otherwise spend on health insurance premiums. I assume, however, that employers would keep as added profits moneys otherwise they would spend on processing health insurance claims and finding and negotiating health insurance plans. (This comes to about 4% of premiums now.)

[9] Perhaps the best measure of this is the employment rate, or the share of adults with jobs. At under 60%, this is nearly five percentage points below the level of 2000, indicating as many as 12 million Americans without jobs in addition to the reported unemployment rate.

[10] The Medicare-for-All program is analytically different from other spending programs because it supplants a greater amount of private spending, through the inefficient private health insurance system, rather than simply providing additional public spending, as do the infrastructure and other programs. For the ARRA, see Alan S Blinder and Mark Zandi, "How the Great Recession Was Brought to an End" (Moody's Analytics, July 27, 2010), https://www.economy.com/mark-zandi/documents/End-of-Great-Recession.pdf. The Medicare-for-All program will require new public spending that is $6 trillion less over 10 years than the out-of-pocket spending and private health care premiums (a form of private taxation) that it replaces. For the stimulative effect of the ARRA, see Alan J. Auerbach, William G. Gale, and Benjamin H. Harris, "Activist Fiscal Policy," *The Journal of Economic Perspectives* 24, no. 4 (October 1, 2010): 141–63; Barry Eichengreen, *Hall of Mirrors: The Great Depression, The Great Recession, and the Uses-and Misuses-of History*, 1 edition (New York, NY: Oxford University Press, 2015); Paul Krugman, "The Not-So-Bad Economy," *The New York Times*, December 7, 2015, http://www.nytimes.com/2015/12/07/opinion/the-not-so-bad-economy.html. The comparison to the ARRA's annual stimulus is, of course, apart from the Medicare-for-All program.

changes Senator Sanders proposes, including higher minimum wages, higher wages for women and overtime workers, and support for increased unionization, will also stimulate economic activity.[11]

Table 4. Summary of economic impact of different aspects of Sanders program.

	Baseline-CBO	Sanders	Change
GDP (nominal)	$ 28,600	$ 43,127	51%
GDP (real)	$ 23,300	$ 31,891	37%
Per-capita GDP (real)	$ 64,903	$ 86,001	33%
Growth rate of per-capita GDP, 2016-26	1.7%	4.5%	168%
Median household income	$ 59,336	$ 82,151	38%
Output (GDP) per worker	$ 146,585	$ 172,530	18%
Annual productivity growth rate	1.55%	3.18%	105%
Employment in 2026	158,952	184,841	16%
Growth rate of employment	0.6%	1.4%	132%
Unemployment rate	5.4%	3.8%	-29%
Employment-Population ratio	57%	65%	14%

Note: *This table gives projected values for GDP and employment in 2026 under successive scenarios. Each column includes the previous columns and changes are from the previous column. The first case gives projections from the Congressional Budget Office, Long Term Fiscal Outlook, 2015. The Expenditure programs include the Rebuild America Act, Employ Young Americans Now, the increase in Social Security benefits and indexation to the CPI-E, the private pensions program, free public higher education, climate change mitigation and energy efficiency, and Medicare-for-All (see Table 1). Revenue programs are described in Table 2. The regulatory program includes the Workplace Democracy Act (card-check union membership), $15 minimum wage, Paycheck Fairness, and overtime protection (see Table 3).*

Like the New Deal of the 1930s, Senator Sanders' program is designed to do more than merely increase economic activity: the expenditure, regulatory, and tax programs will increase economic activity and employment *and* promote a more just prosperity, "broadly-based" with a narrowing of economic inequality.[12]

On balance, the Sanders program will lead to a dramatic acceleration in economic growth and employment. It will raise wages, especially for the lowest-paid Americans, and narrow the gap between rich and poor. With these gains, economic conditions will return to the prosperity of the late-1990s, or even the mid-1960s. While, in contrast with the post-WWII decades, wages will continue to lag behind productivity growth because of the continued weakness of the American labor movement, government

[11] The Congressional Budget Office recognizes this stimulant effect by applying a much higher multiplier to tax cuts for working people and the middle class than to the rich; see Congressional Budget Office, "How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy". Increasing effective demand was a major consideration in New Deal era reforms; see William B Gould, "Some Reflections on Fifty Years of the National Labor Relations Act: The Need for Labor Board and Labor Law Reform," *Stanlawrevi Stanford Law Review* 38, no. 4 (1986): 937–44; Alan Brinkley, *The End Of Reform: New Deal Liberalism in Recession and War*, Reprint edition (Vintage, 2011); Ira Katznelson, *Fear Itself: The New Deal and the Origins of Our Time*, 2013.

[12] The balance of reform and recovery is familiar to scholars of the New Deal. See, for examples, Brinkley, *The End Of Reform*; Katznelson, *Fear Itself*.

programs including progressive taxation will dramatically narrow the gap between rich and poor.[13] This is different from the post-WWII period because wage increases and reductions in poverty and inequality will come more from government action, especially increases in the minimum wage, and from progressive taxation, rather than from collective bargaining or the working of competitive labor markets. The continued wage lag behind productivity reflects the weakness of the Labor Movement and labor unions despite the proposed enactment of the Workplace Democracy Act.[14]

National income

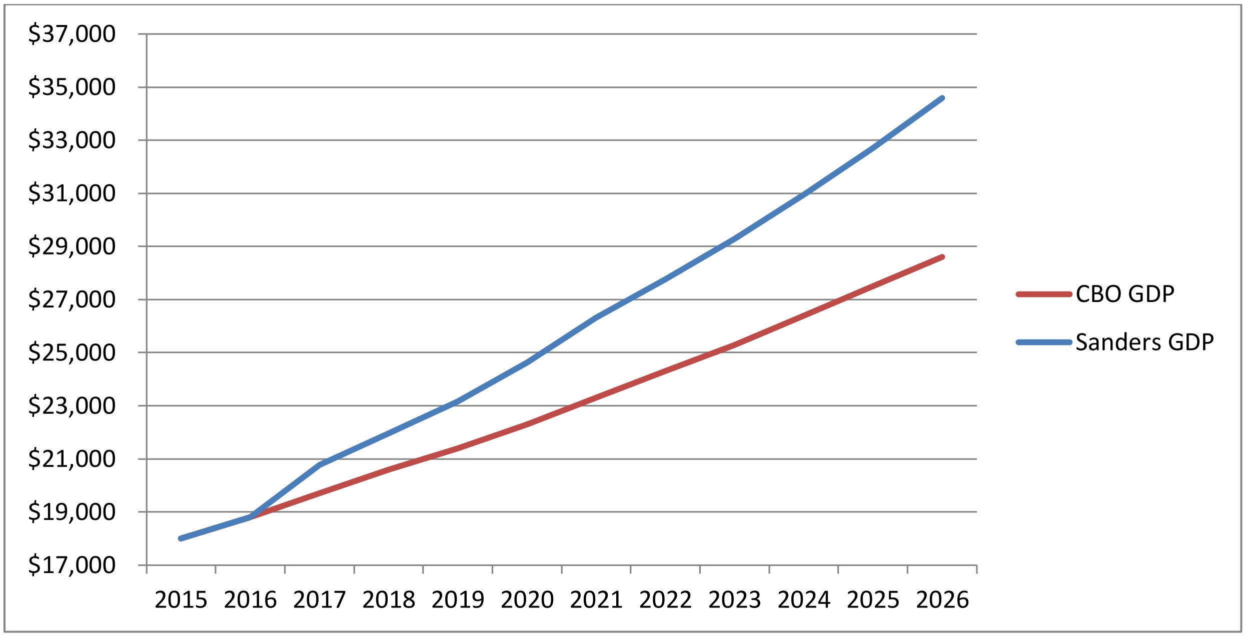

Figure 1. Gross Domestic Product under CBO forecast and with Sanders program with CBO price inflation

Note: This figure shows the Sanders GDP at CBO prices, without the approximately 1% higher inflation that will come with the Sanders program.

Increases in national income will raise personal income, and the increase will be greater still in median income because of spending and regulatory programs that will raise wages and the income of retirees and working people. Economic conditions projected by the CBO would raise median household income by 10% over the decade 2016-26. Improved conditions under the Sanders program will raise median household income by 37%; regulatory, spending, and tax programs will increase median income by another 12%. In real dollars, this means an increase in median household income of over $20,000 beyond what is expected with the CBO economic growth rate (see Figure 2).

[13] It is projected that the ratio of the average income of the top 5% to that of the bottom 20% will **drop below to the level of the early 1970s**, down to about 9 from almost 23 now. Most of this decline comes from government programs: regulatory changes, such as the higher minimum wage, and tax increases targeted at the richest 5%. By contrast, economic growth by itself will not raise wages enough to reduce inequality.

[14] Jake Rosenfeld, *What Unions No Longer Do* (Cambridge, Massachusetts ; London, England: Harvard University Press, 2014); Richard B Freeman, *What Do Unions Do?* (New York: Basic Books, 1984); Gerald Friedman, *Reigniting the Labor Movement: Restoring Means to Ends in a Democratic Labor Movement* (Abingdon, Oxon: Routledge, 2007).

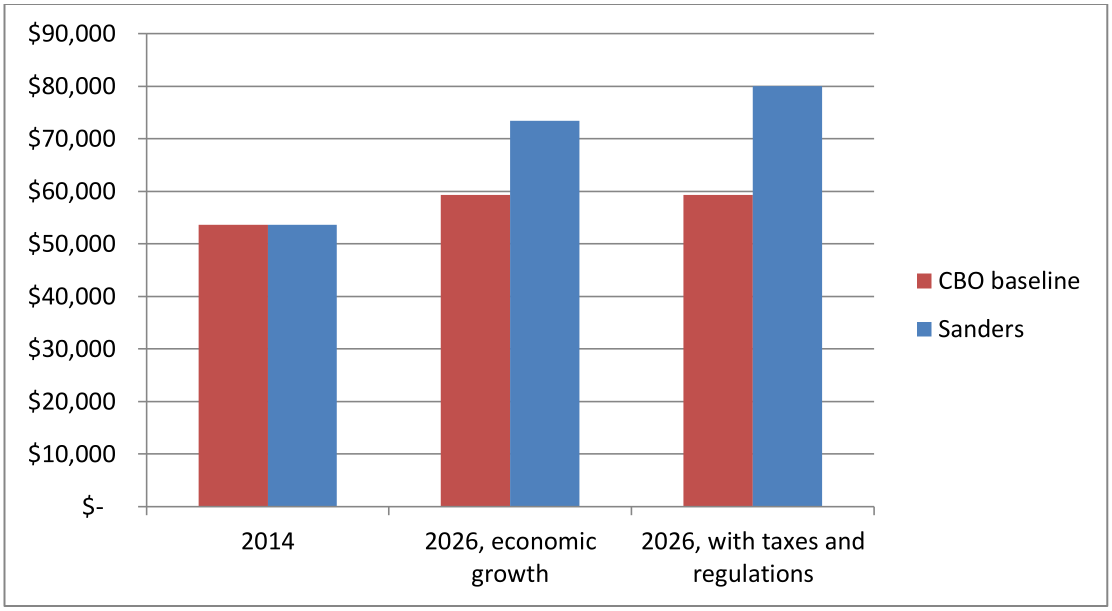

Figure 2. Median household income: projected from CBO baseline and Sanders program.

National income will grow faster under the Sanders program and resources currently unemployed or underemployed will be put to work. In Table 4 I compare a summary of economic conditions in 2026 after the enactment of Senator Sanders's program to the baseline forecast of the Congressional Budget Office. In Figure 1 and Figure 3, I present projected GDP and employment levels for the next decade according to the forecasts of the Congressional Budget Office along with estimates that include the impact of the Sanders program.[15] The Sanders program, including his spending program's net fiscal stimulus, the greater spending from changes in the regulation of labor markets, and his tax program, will raise the gross domestic product by 37% and per capita income by 33% in 2026; the growth rate of per capita GDP will increase from 1.7% a year to 4.5% a year.[16]

[15] I assume the program is enacted immediately upon his inauguration but some elements, such as the minimum wage increases, do not go into effect until January 1, 2018. The CBO forecasts are from the "The 2015 Long-Term Budget Outlook," *Congressional Budget Office*, accessed September 21, 2015, https://www.cbo.gov/publication/50250.

[16] The inflation rate will increase under the Sanders program by about 1% per year, from 2% a year to 3%. Despite this increase, I assume that monetary policy will accommodate the increase in growth without raising interest rates, except to the extent that tightening will cause the steady reduction in the size of the fiscal multiplier that I assume happens as the economy approaches full employment. Despite some cost pressure from the carbon tax and minimum wage increases, there will also be sustained downward pressure on inflation because the Medicare-for-All program will contain health care inflation, and it is expected that real wages will continue to lag behind rising labor productivity. Note also that unlike the 1960s, wage pressures are contained by the continued weakness of the American Labor Movement, and the move towards a balanced budget and then a surplus will reduce pressure on the Federal Reserve to raise interest rates. Rising immigration will also dampen inflationary pressures. This increase in immigration with rising economic activity and full employment also explains why the acceleration in the growth of real per capita income is less than in real GDP.

Productivity, employment, and unemployment

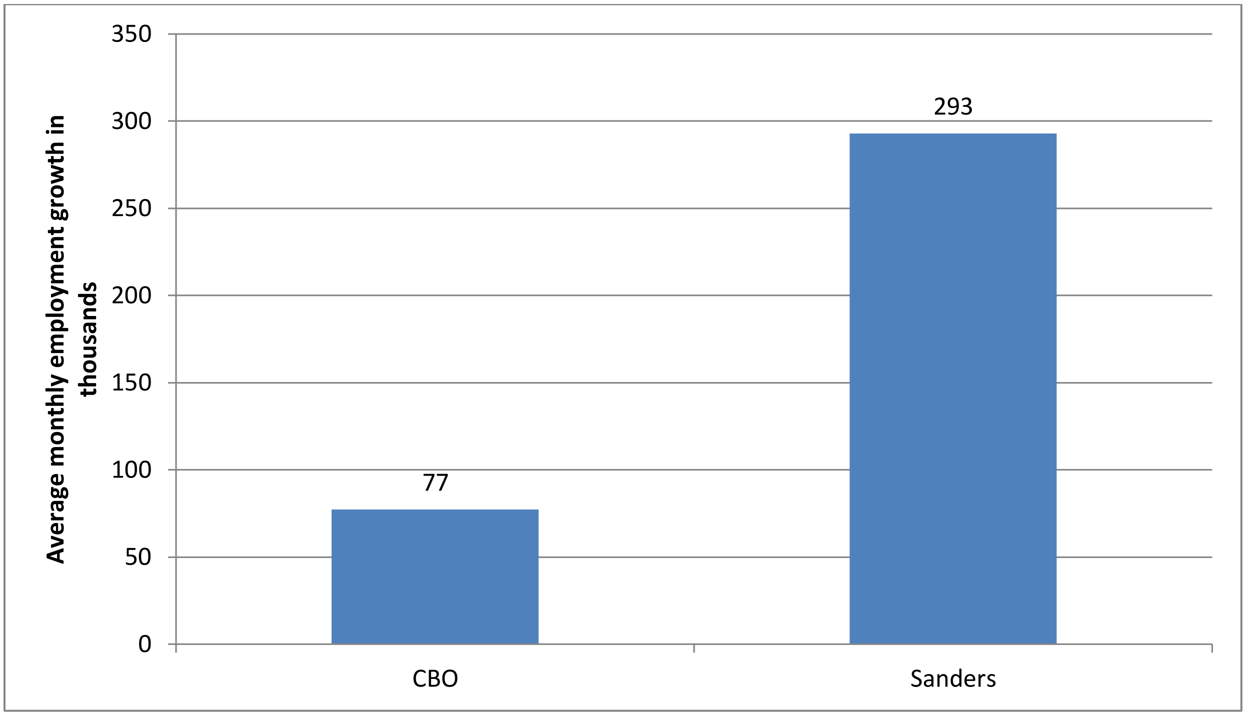

Figure 3. Monthly employment growth, Sanders program versus Congressional Budget Office baseline, 2017-2026.

The Sanders program more than doubles the growth rate in real per capita income. This increase comes almost equally from increases in employment and increases in labor productivity or output per employed worker. More Americans will have jobs. Instead of increasing by 0.6% a year, under the Sanders program employment rises by 1.4% a year, leading to the creation of over 23 million additional jobs in 2026.[17] The average monthly employment gain rises from 77,000 in the CBO forecast to 293,000 with the Sanders program. Higher demand for labor is also associated with an increase in labor productivity and this accounts for about half of the increase in economic growth under the Sanders program.[18] Labor

---

[17] Between 2017 and 2026, there will be 140 million additional **years** of employment, an increase of 9% over the CBO projection for that period.

[18] There is a strong positive correlation between productivity growth and levels of unemployment and rates of GDP growth; the R2 in a regression for productivity growth and real GDP growth is 0.65. Higher GDP growth explains all of the higher productivity growth projected here. The association of higher productivity growth and low unemployment is sometimes called "Verdoon's Law" after the Dutch economist, P. J. Verdoorn; see J. Verdoorn, "On the Factors Determining the Growth of Labor Productivity," *Italian Economic Papers* 2 (1993); P. J. Verdoorn, "Verdoorn's Law in Retrospect: A Comment," *The Economic Journal* 90, no. 358 (1980): 382–85, doi:10.2307/2231798. It is also associated with the British economist Nicholas Kaldor; see Nicholas Kaldor, *Causes of the Slow Rate of Economic Growth of the United Kingdom: An Inaugural Lecture* (London: Cambridge University Press, 1966). For other discussions, see R. Dixon and A. P. Thirlwall, "A Model of Regional Growth-Rate Differences on Kaldorian Lines," *Oxford Economic Papers* 27, no. 2 (1975): 201–14; Garth L. Mangum, *Three Worlds of Labor Economics* (M.E. Sharpe, 1988). An empirical test of U.S. data is in Yongbok Jeon and Matías Vernengo, "Puzzles, Paradoxes, and Regularities: Cyclical and Structural Productivity in the United States (1950–2005)," *Review of Radical Political Economics* 40, no. 3 (September 1, 2008): 237–43, doi:10.1177/0486613408320002. Some theoretical explanation of the phenomenon is in Walter Y. Oi, "Labor as a Quasi-Fixed Factor," *Journal of Political Economy* 70, no. 6 (1962): 538–55.

productivity increases by 3.1% per annum, twice as fast as in the CBO case, a return to the productivity growth rates of the full-employment years in the 1960s.[19]

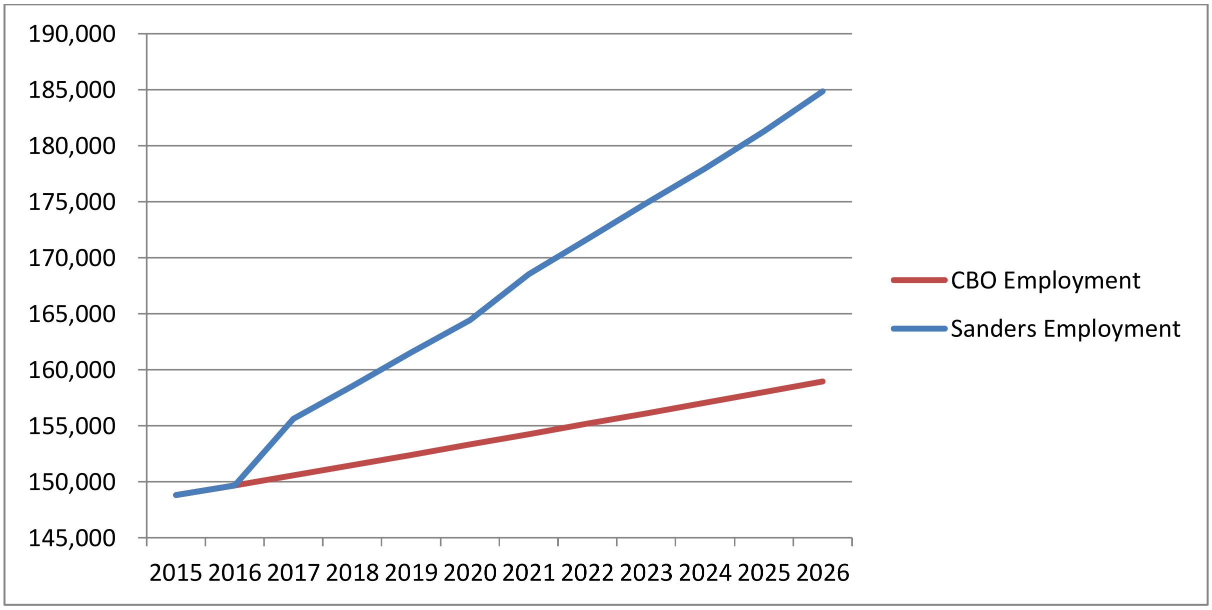

Figure 4. Employment levels, CBO forecast and with Sanders program.

Higher rates of employment growth will drive the unemployment rate down to levels seen only briefly since the 1960s. The unemployment rate in 2026 is projected to be 3.8%, 1.6 percentage points below the baseline CBO forecast, and the employment rate will rise back to 65%, up from the 57% forecast by the CBO.[20] After rising steadily from the 1990s to 2000, the employment-population ratio fell sharply in both the recession of 2000 and the great recession of 2007. The share of the adult population working has recovered only slightly since hitting bottom in 2011 and remains at the 1983 level. The CBO forecasts a continued decline in this ratio down to the 1966 level; under the Sanders program, it will rise to the pre-recession level of the late 1990s (see Figures 5 and 6).[21]

[19] Productivity growth rates fall with unemployment throughout 1959-2014. In a regression of annual productivity growth on unemployment, the coefficient on unemployment is -0.54 and an unemployment rate of 4% is associated with productivity growth of 3.3% a year, a little more than the forecast with the Sanders plan; unemployment of 5.4% is associated with productivity growth of 2.6%, higher than the forecast for the CBO.

[20] The low unemployment rate implies a high degree of labor utilization and inflationary pressure for higher wages. As is discussed later, this estimate of the unemployment rate, however, comes from a low estimate of labor-force entry by adults out-of-the-labor-force, including many who were in the labor force before the 2007 and even the 2001 recession. In contrast with the unemployment rate, the continued low employment-population ratio suggests continued labor market slack. On this point, note that in my estimates of wage growth used for Table 5, it is the growth in employment *not* the unemployment rate that provides a better estimate of annual wage growth 1960-2014.

[21] Note that the continued growth of women's employment since the 1980s and a return to the employment-population rates of earlier years implies a decline in employment and labor-force attachment by men. For another view of the decline in the labor force, see Casey B. Mulligan, *The Redistribution Recession: How Labor Market Distortions Contracted the Economy* (New York: Oxford University Press, 2012).

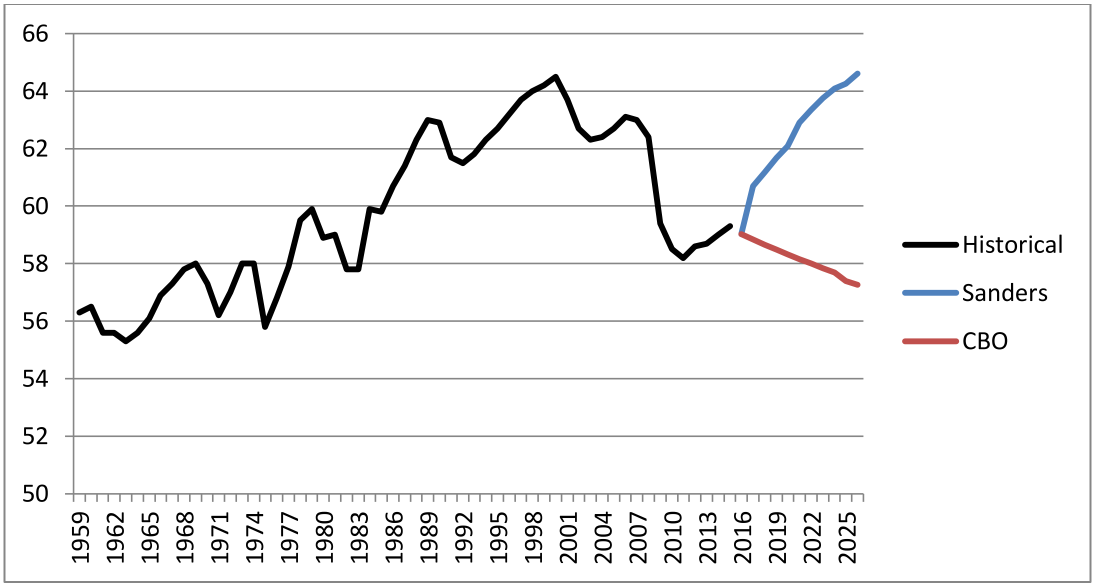

Figure 5. Employment rate, Sanders and CBO

Note: *This figure shows the share of the adult population with jobs. After rising steadily into the 1990s, the employment rate remained around 63% from 1990 to 2008, when it fell precipitously with the onset of the Great Recession. While the CBO expects that the employment rate will fall further below earlier levels into the 2020s, the Sanders program will bring the employment rate back to its level before the recession of 2000.*

Similarly, while the CBO projections imply a continued decline in the labor force participation rate, under the Sanders program this is expected to return to over 67%, or its pre-recession levels (see Figure 6).[22]

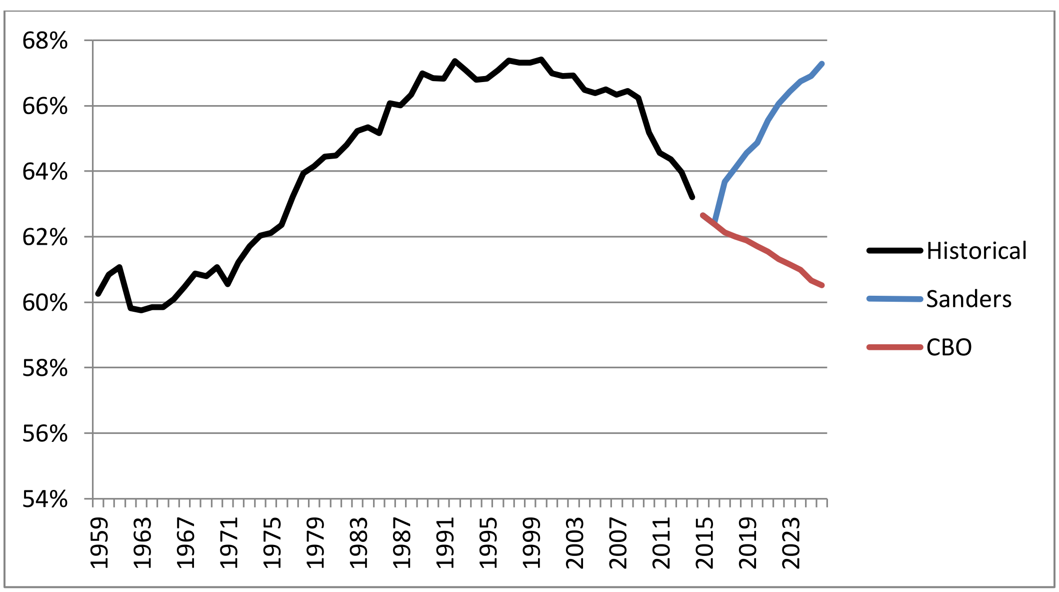

Figure 6. Labor Force Participation Rate: Sanders versus CBO

---

[22] Women's employment will be encouraged by the Paycheck Fairness Act, which will raise the wages of women, encouraging more to seek paid employment.

Table 5. Changes in poverty, wages, inequality with Sanders program

Variable	Baseline-CBO Forecast	Forecast with Sanders program	Change
Poverty rate	13.9%	6.0%	-57%
Child poverty rate	21.0%	10.7%	-49%
Annual real wage growth	0.33%	2.49%	665%
Shortfall: productivity - wages	1.22%	0.69%	-44%
Inequality: 95:20 ratio	27.5	10.1	-63%

Growth *and* fairness: the macroeconomic impact of Sen. Sanders' program

As President Kennedy famously remarked in 1963, faster economic growth will benefit everyone because "a rising tide lifts all boats."[23] Something must be wrong with the tide or, maybe many Americans have boats with leaky hulls, because since the early 1970s the benefits of economic growth in the United States have gone almost exclusively to the richest among us.[24] This will continue under the CBO forecast; relatively slow growth will lower incomes for the bottom 20% by 9%, almost matching the rate of *increase* in income for the top 5% (see Figure 8). Faster economic growth under the Sanders program will help to slow the decline in relative income for the bottom 20%, turning a 9% decline into an increase of 8%. Nonetheless, faster growth widens disparities further by increasing the growth rate in incomes for the top 5% by 22% instead of 9%. Without strong unions, with a large overhang of underemployed and unemployed workers, and in the face of growing international trade competition, growth has only a small effect on incomes for poor and working Americans because it does little to raise wages. (Faster economic growth with the Sanders program raises wages only slightly over the next decade, by 10% compared with 3% in the CBO baseline.)

[23] Unlike many famous sayings, this one was actually spoken by the person commonly credited for it, in this case President Kennedy. He said it in a speech at the dedication of a dam in Arkansas on October 3, 1963; http://www.presidency.ucsb.edu/ws/index.php?pid=9455.

[24] Rising inequality has been the subject of considerable discussion and research. For a sample, see Thomas Piketty, "TOP INCOME SHARES IN THE LONG RUN: AN OVERVIEW," *JEEA Journal of the European Economic Association* 3, no. 2–3 (2005): 382–92; Thomas Piketty and Arthur Goldhammer, *Capital in the Twenty-First Century* (Cambridge Massachusetts: The Belknap Press of Harvard University Press, 2014); A. B. Atkinson and Thomas Piketty, eds., *Top Incomes over the Twentieth Century: A Contrast between Continental European and English-Speaking Countries* (Oxford ; New York: Oxford University Press, 2007); Robert B Reich, *Beyond Outrage: What Has Gone Wrong with Our Economy and Our Democracy, and How to Fix It* (New York: Vintage Books, 2012); James K. Galbraith, *Inequality and Instability: A Study of the World Economy Just Before the Great Crisis*, 1 edition (New York, N.Y: Oxford University Press, 2012); Jacob S Hacker and Paul Pierson, *Winner-Take-All Politics: How Washington Made the Rich Richer-and Turned Its Back on the Middle Class* (New York: Simon & Schuster, 2010); Reich, *Beyond Outrage*; Robert B. Reich, *Saving Capitalism: For the Many, Not the Few*, First edition (New York: Alfred A. Knopf, 2015). The shrinking size of the American middle class is in Pew Research Center et al., "The American Middle Class Is Losing Ground," *Pew Research Center's Social & Demographic Trends Project*, accessed December 10, 2015, http://www.pewsocialtrends.org/2015/12/09/the-american-middle-class-is-losing-ground/.

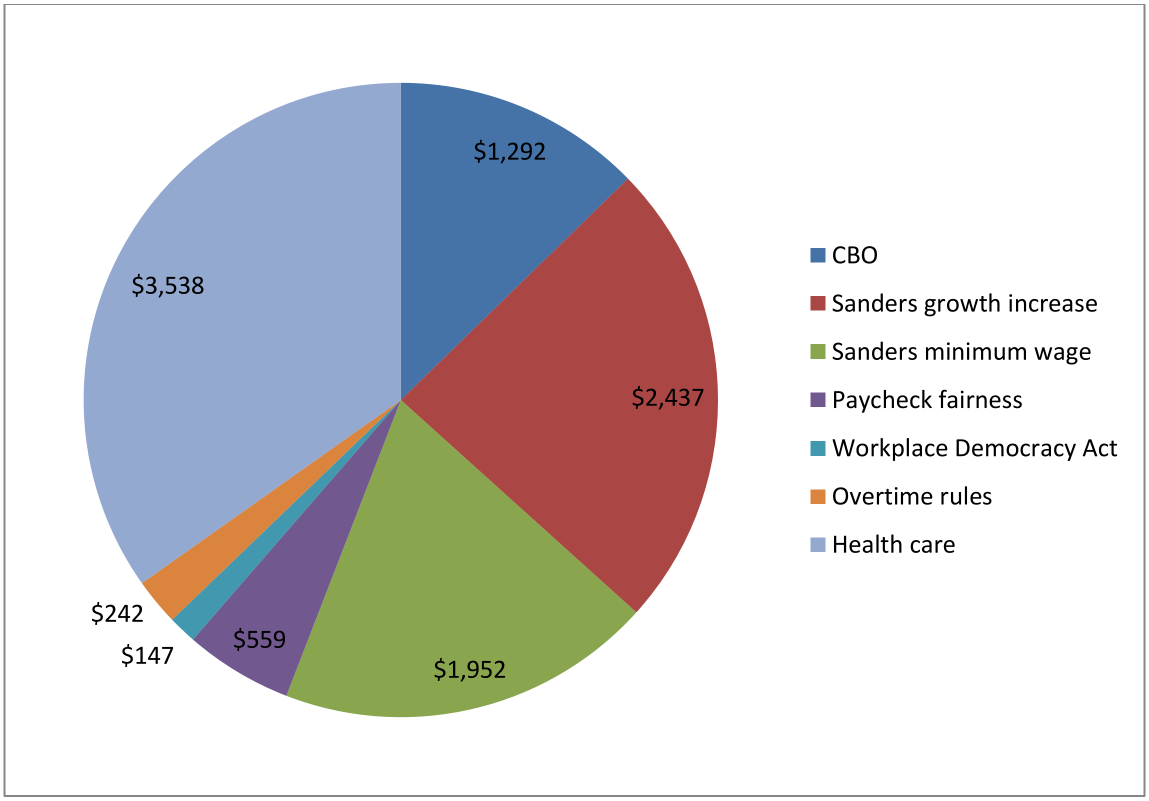

Figure 7. Sources of wage increase, 2026 compared with 2015.
Note: This figure gives the average annual wage increase for the average American worker coming from different aspects of the Sanders program. The CBO projects an increase of $1,292 per year; by eliminating the burden of private health insurance premiums, Medicare-for-All would raise wages by $3,538; faster economic growth adds another $2,437; raising the minimum wage to $15/hour adds another $1,952, etc.

Larger wage increases and poverty reductions will come only from regulatory programs, especially the increase in the minimum wage.[25] Tax and regulatory changes proposed by Senator Sanders will dramatically narrow disparities by raising wages and reducing after-tax incomes for the rich (see Figure 7 and Table 5). Increases in the minimum wage, increasing unionization, and other regulatory changes plus the Medicare-for-All program will increase wages and incomes at the bottom, almost tripling the growth in wages from 10% to 29%, and raising incomes for the bottom quintile by 24% instead of 8%. After taking account of faster economic growth and the proposed regulatory and tax changes, the ratio of average income for the top 5% to income for the bottom 20% will fall from 27.5 in the CBO baseline to 10.1.

This marks a dramatic reversal of current trends.[26] Note that it is largely the program of progressive tax increases that brings the 95:20 ratio back down below the level of the early 1970s (see Figure 8).

---

[25] The impact of increases in the minimum wage on poverty is assessed in Arindrajit Dube, "Minimum Wages and the Distribution of Family Incomes" (Working Paper, Amherst, MA., December 30, 2013), https://dl.dropboxusercontent.com/u/15038936/Dube_MinimumWagesFamilyIncomes.pdf; Robert Pollin, *A Measure of Fairness: The Economics of Living Wages and Minimum Wages in the United States* (Ithaca: ILR Press, 2008).

[26] The 95:20 ratio will fall to the level of the mid-1970s. See Table F-3, "Mean Income Received by Each Fifth and the top 5 Percent" at https://www.census.gov/hhes/www/income/data/historical/inequality/

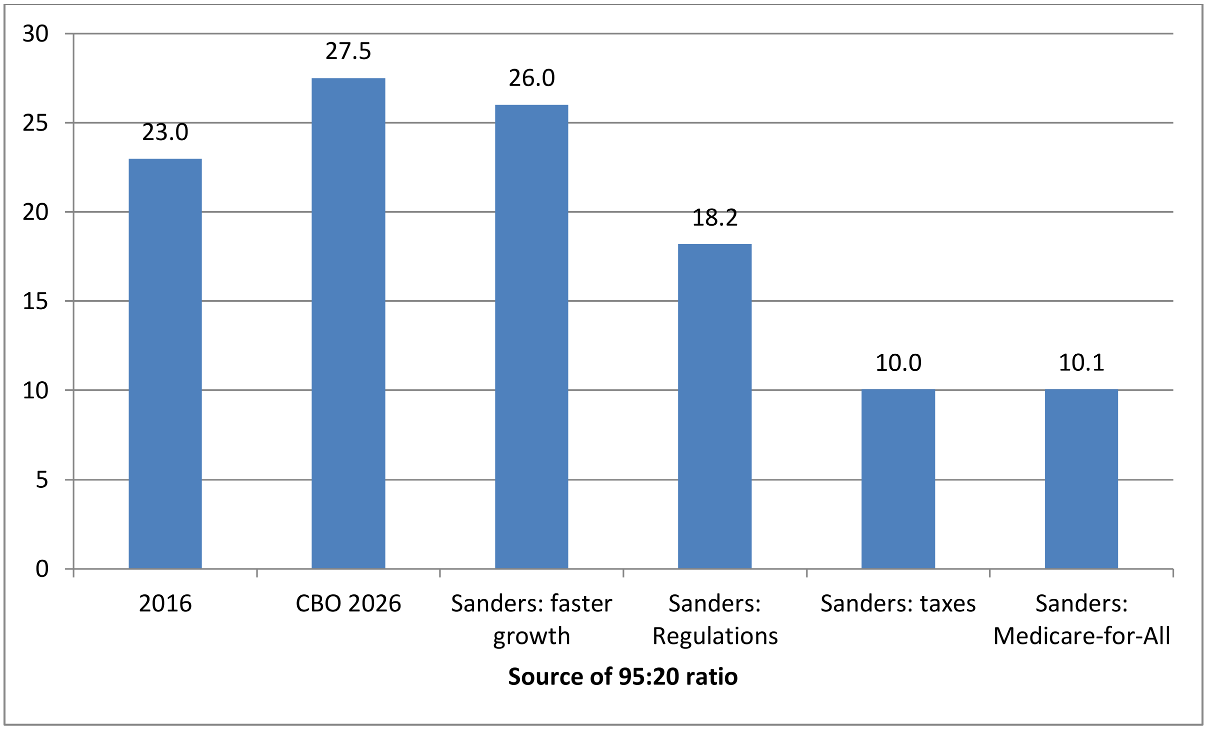

Figure 8. Effect of Sanders programs on ratio of income of top 5% to bottom 20%

Note: This Figure gives the 95:20 ratio after taking account of sequential policy actions. The first columns give the baseline estimate coming from an estimate of income for the top 5% and the bottom 95% based on the CBO projected growth. The next column gives the ratio after estimating the effect of Sanders growth on income for the different groups; the next column takes account of the effect of Sanders regulations on income for each group. The final columns take account of the effect of Sanders tax policies and the implementation of improved Medicare-for-All.

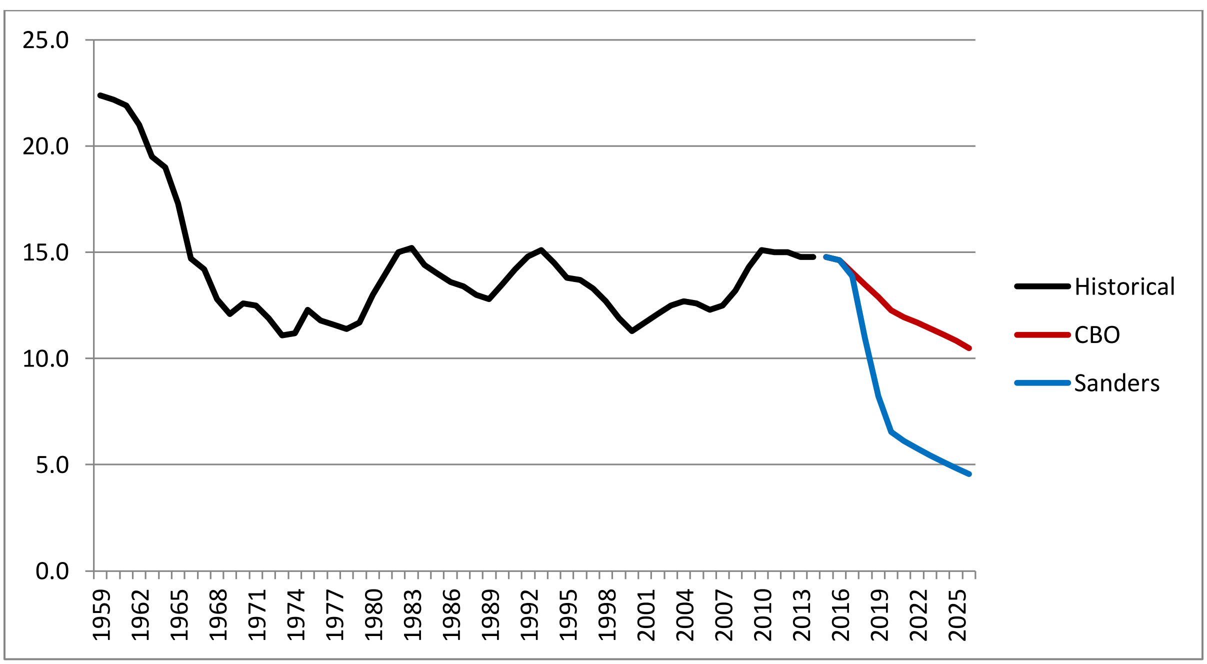

Figure 9. Poverty rate, overall, historical and as projected by CBO and with Sanders program, 2014-26.

Regulatory and spending programs can also dramatically reduce poverty. The poverty rate will fall under the Sanders program by 7.9 percentage points, and it falls by 10.3 points for children, or by 57% and 49% respectively. This will bring both the overall poverty rate and the childhood poverty rate to their lowest recorded levels.[27] As with wages and inequality, only a part of the decline in the poverty rate will come from faster economic growth. More of the decline in poverty will be due to direct government interventions, especially expansions in social security, including an increase in the minimum benefit, and increases in the minimum wage to a level that will lift most working people out of poverty.[28] Economic growth contributes by creating jobs and higher wages.[29]

Fiscal balance

While the Sanders program is intended to promote growth and broadly based prosperity rather than budget balance, it would substantially reduce the Federal deficit during a second term and achieve budget balance soon after. Budget balance will be achieved through progressive tax increases and because faster economic growth reduces social spending while increasing tax revenues.

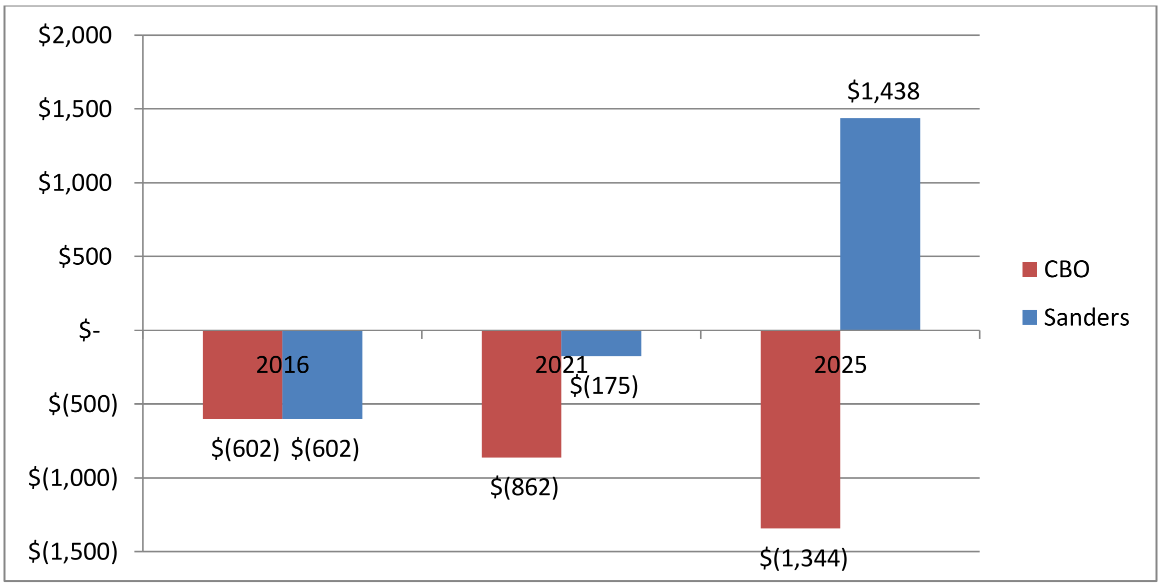

Figure 10. Federal cash budget balance, CBO vs. Sanders, end of first and second terms

While the Sanders fiscal stimulus will initially increase the Federal deficit, this deficit will contribute to faster economic growth which, combined with progressive tax increases, will quickly bring down the deficit, producing a surplus during a Sanders second term (see Figures 10 and 11). While the CBO projects a large and increasing government deficit for the foreseeable future, Sanders will eliminate the

[27] Living standards will increase further with the integration of Medicaid into a universal health insurance program, Medicare-for-All.

[28] Direct anti-poverty program include the increase in social security payments and the improved indexing of social security. As these increases are phased in, they will move many elderly and disabled people out of poverty. They have little effect on childhood poverty, however, which falls as more parents get jobs and wages rise for low-wage workers with the increase in the minimum wage.

[29] This does not take account of the long-term improvements in living standards coming from tuition-free public higher education, and improved access to health care. All of these measures should raise incomes and reduce poverty over time by increasing the productivity of otherwise low-wage workers.

deficit with tax increases, increased revenues and reduced safety-net spending coming from faster economic growth, and savings from lower interest costs for a smaller government debt.[30] Additional spending of $1.6 trillion in 2026 is balanced by $2.3 trillion in additional revenue from faster economic growth.[31] In addition, there will be $1.9 trillion from increased revenues from the Sanders program of progressive taxes, and $0.4 trillion in reduced debt service (see Table 6). The fiscal swing is enough to produce a surplus of 3% of GDP (see Figure 11).

Table 6. Sources of Sanders surplus, 2026

Change in increased spending	$	(1,659)
Change in revenues from faster economic growth	$	2,346
Change in tax revenues from progressive tax program	$	1,911
Change from interest savings	$	402

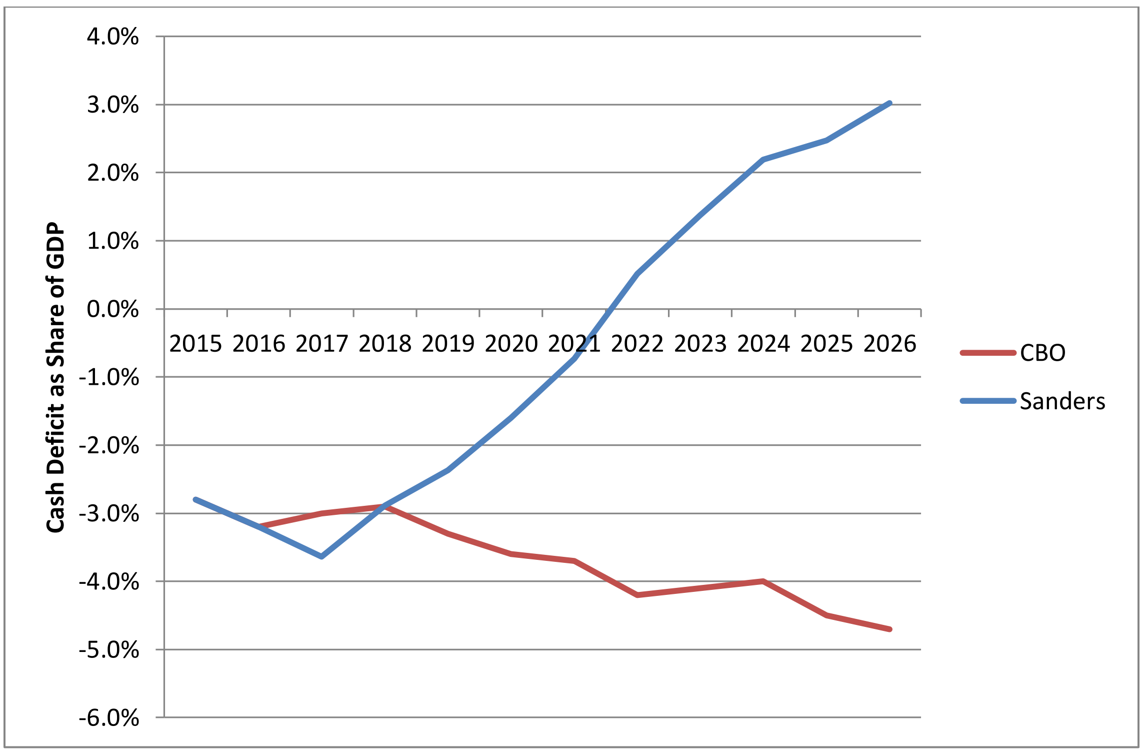

Figure 11. Federal government deficit as share of GDP under Sanders regulatory, spending, and tax programs

Conclusion

Senator Sanders' program will reverse economic trends that have been building for nearly 40 years.[32] The stimulus of increased government spending and higher wages will increase effective demand, raising

[30] The fiscal swing towards surplus will conveniently slow the economy just as it is approaching full employment, dampening any inflationary pressures.
[31] Greater spending in 2026 is largely for Medicare-for-All.
[32] David M. Kotz, *The Rise and Fall of Neoliberal Capitalism* (Cambridge, Massachusetts ; London, England: Harvard University Press, 2015).

rates of economic growth leading to higher rates of employment and higher productivity. Faster growth and regulatory changes will increase earnings for lower income workers even while tax increases and the effects of higher wages will slow the growth at higher incomes, even lowering them slightly. The result is an economic policy that will begin to close the gap between economic output and potential while narrowing the gap between rich and poor.

Like the New Deal of the 1930s, the Sanders program achieves a dramatic increase in economic growth and income while simultaneously narrowing disparities between rich and poor. Again like the New Deal, faster economic growth will come with reductions in inequality because effective demand increases when income is transferred from the richest Americans to the middle-class and working people.[33] By directly raising wages, the regulatory program creates nearly as much boost in GDP and employment as the program of direct spending (see Figures 12 and 13). The tax program, which produces a dramatic reduction in inequality, has only a relatively small negative effect on economic activity because it is targeted so precisely at the richest with their relatively low propensities to consume.

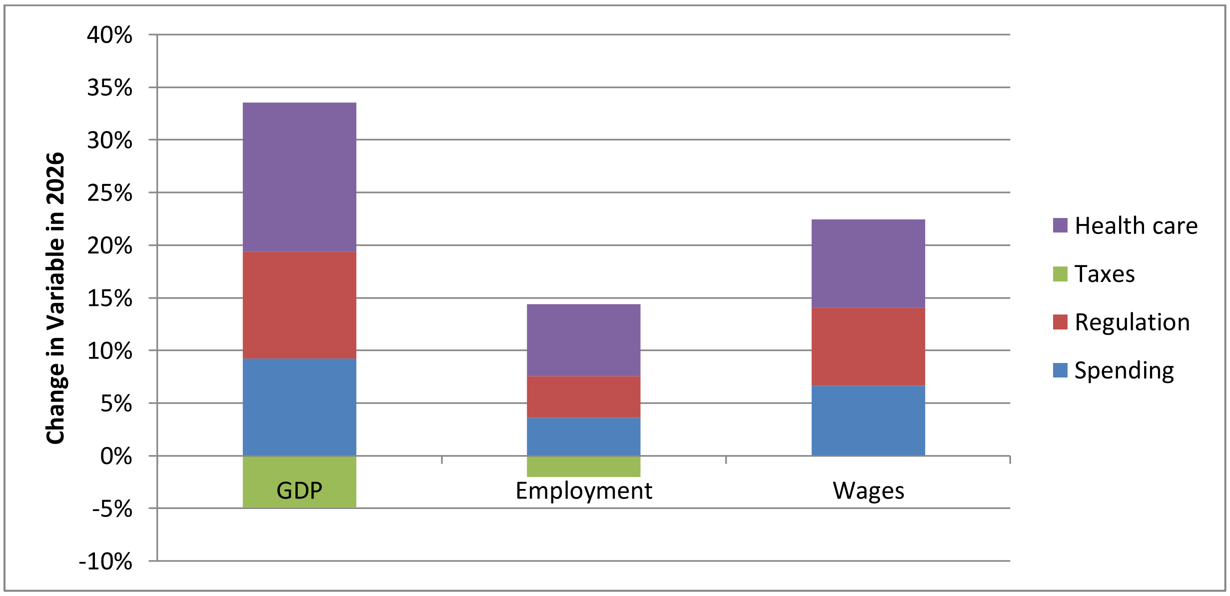

Figure 12. Sources of Economic Change in the Sanders Program.
Note: *This figure shows the approximate change in economic variables coming from the different components of the Sanders program, including the spending program (other than health care), regulations (such as the increase in the minimum wage), taxes (not including the health-care taxes), and the health-care program (including both the tax and spending for Improved Medicare-for-All). Note that this analysis is only approximate because it does not take account of interaction effects.*

[33] Paul Keith Conkin, *The New Deal*, 2d ed, The Crowell American History Series (New York: Crowell, 1975); Arthur M. Schlesinger, *The New Deal in Action, 1933-1939* (Folcroft, Pa: Folcroft Library Editions, 1977); Brinkley, *The End Of Reform*; Jefferson Cowie, *The Great Exception: The New Deal and the Limits of American Politics*, Politics and Society in Twentieth-Century America (Princeton: Princeton University Press, 2016); Steve Fraser and Gary Gerstle, *The Rise and Fall of the New Deal Order, 1930-1980* (Princeton, N.J.: Princeton University Press, 1989). By using the 95:20 ratio, I am understating the reduction in inequality for middle-income Americans who bear the greater burden of private health care premiums, a form of private taxation. Lower income households are largely spared this burden because of the Medicare and Medicaid programs and the ACA exchange subsidies; they therefore benefit relatively little financially from the Medicare-for-All program. (They will benefit from improvements in access to health care with the integration of Medicaid into the general health care system.).

The Sanders program would, of course, face political obstacles to enactment. Beyond those, however, it will also face economic obstacles not considered here. In particular, rising economic growth will be slowed if the Federal Reserve moves aggressively to abort the economic expansion by reducing monetary growth and raising interest rates.[34] In addition, in a world where other countries are undergoing austerity, rising growth in the United States risks driving up imports and creating a balance of payments crisis. Finally, the type of economic redistribution proposed by Senator Sanders could be undermined by behavioral changes. Rising wages may lead to reductions in employment and declining business investment.

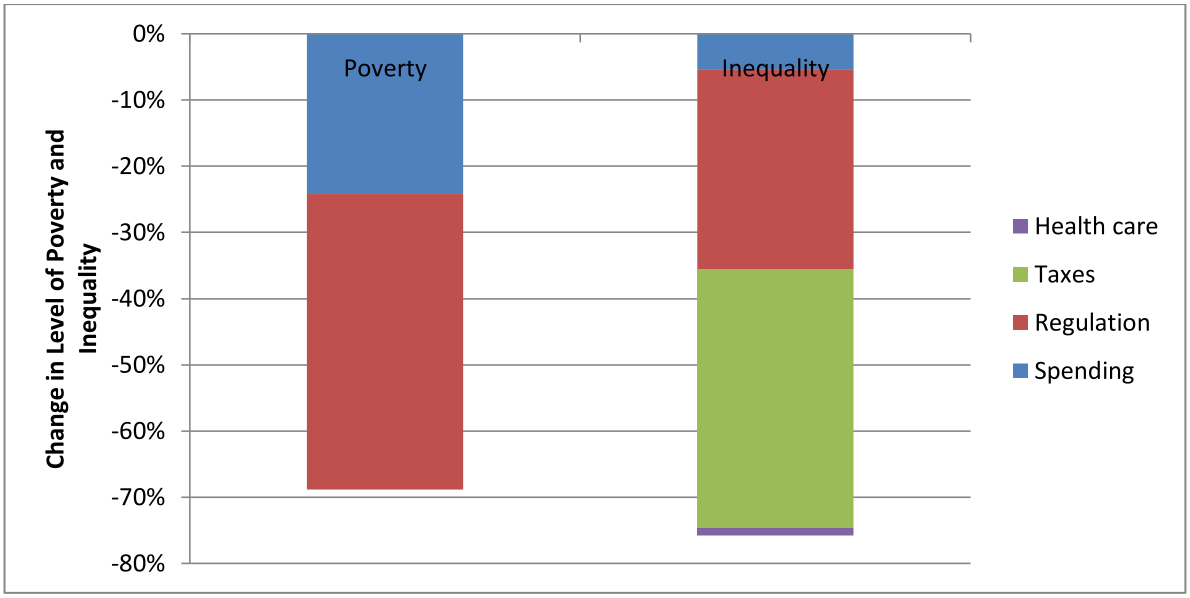

Figure 13. Sources of change in povety rate and level of inequality (ratio of average income top 5% to bottom 20%)
Note: *This figure shows the approximate change in economic variables coming from the different components of the Sanders program, including the spending program (other than health care), regulations (such as the increase in the minimum wage), taxes (not including the health-care taxes), and the health-care program (including both the tax and spending for Improved Medicare-for-All). Note that this analysis is only approximate because it does not take account of interaction effects.*

In the end, success or failure rests on the strength of the political forces behind a Sanders Administration. Here the greatest weakness of the Sanders program may be the relatively timid initiatives on behalf of unions. The Labor Movement has been the backbone of political movements for higher wages and progressive taxation. Its decline and weakness have removed the greatest force on behalf of the progressive economic policies espoused by Senator Sanders.[35]

[34] Some monetary tightening is anticipated here and represented by the reduction in the spending multiplier as the economy approaches full employment. The improving fiscal position should also reduce pressure on the Federal Reserve to raise interest rates.
[35] There may be some increase in union membership with faster economic growth; but this effect will probably be small because union membership has been only weakly procyclical in recent decades. See, for example, Thomas Geoghegan, *Only One Thing Can Save Us: Why America Needs a New Kind of Labor Movement* (New York: The New Press, 2014). The weakness of American democracy is discussed in Martin Gilens and Benjamin Page, "Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens," *Perspectives on Politics*, Fall 2014, http://www.princeton.edu/~mgilens/Gilens%20homepage%20materials/Gilens%20and%20Page/Gilens%20and%2

Appendix 1: Parameter Estimates

Baseline estimates of economic conditions 2016-26 are the projections from the Congressional Budget Office in its Long-Term Budget Outlook.[36] The impact of the Sanders program is estimated using a series of macroeconomic parameters. [37]

GDP Multipliers

Changes in GDP compared with the CBO baseline are estimated as changes in spending due to the Sanders program and the multipliers for particular spending. In estimating the effect of Sanders expenditure programs, I make a conservative estimate of the stimulative effect of the Sanders program by using a relatively low spending multiplier. I assume the multiplier is two in first-quarter of 2009 and then falls by 20 times the reduction in the output gap.[38] With this procedure, the average value of the multiplier from 2017-26 is 0.89, falling from 1.25 to 0.87 as the output gap closes (see Table 11).

The effect of upper-income tax increases or reductions in income due to other programs is estimated using the mid-point of the CBO estimates.[39] The multiplier for increases in income for lower-income households is estimated at the mid-point of CBO estimates for lower- and middle-income people.[40]

Employment and GDP

Once GDP estimates are made, the effect on employment is estimated from the "Okun's Law" relationship between income and employment. The value used is the average of the annual data for the relationship between growth in the GDP and employment in recovery years from 1959-2014.[41]

0Page%202014-Testing%20Theories%203-7-14.pdf; Friedman, *Reigniting the Labor Movement*; Reich, *Saving Capitalism*; Benjamin I. Page, *Class War?: What Americans Really Think about Economic Inequality* (Chicago: The University of Chicago Press, 2009). For a particularly harsh assessment of American politics, see Cowie, *The Great Exception*; and Gerald Friedman, "Les États-Providence Américains : Valeurs et Politique Dans La Fabrique Du Système Redistributif Des États-Unis," *Cycnos: Les études Anglophones* 30 (January 2014): 3–22.

[36] "The 2015 Long-Term Budget Outlook". Key parameters are from Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2012 Through December 2012" (Washington, D. C.: Congressional Budget Office, February 2013), http://www.cbo.gov/sites/default/files/cbofiles/attachments/43945-ARRA.pdf; ; and Congressional Budget Office, "How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy". For a different approach to dynamic scoring focused more on behavioral changes, see Keith Hall, "How CBO Will Implement Dynamic Scoring: Presentation at the Heritage Foundation" (Heritage Foundation: Congressional Budget Office, June 17, 2015), https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/presentation/50317-heritageslides.pdf; Casey B. Mulligan, *Side Effects and Complications: The Economic Consequences of Health-Care Reform* (Chicago ; London: The University of Chicago Press, 2015); Mulligan, *The Redistribution Recession*.

[37] Note that these estimates are all done on the assumption that monetary policy will accommodate increases in national income and employment.

[38] Estimated from the national income data from the BEA and "An Update to the Budget and Economic Outlook: 2014 to 2024," *Congressional Budget Office*, accessed October 27, 2014, https://www.cbo.gov/publication/45653.

[39] "Other" programs here include minimum wage increases shifting income from employers and owners to workers; for multipliers, see Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2012 Through December 2012" Table 2. Congressional Budget Office, "How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy."

[40] Again, Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2012 Through December 2012" Table 2.

Employment and movements in and out of the labor force

Beginning with the CBO estimates of employment, the labor force, and the adult population, I estimated the effect of the Sanders program on employment, unemployment, and the size of the labor force. Changes in employment are estimated from their estimates of GDP growth on the assumption that every 2.32% increase in GDP will bring a 1% increase in employment.[42] I assume that reductions in the number of unemployed will account for 16.92% of the average annual increase in employment.[43] The rest of the increase in employment will be due to growth in the labor force.

Immigration

Immigration is procyclical and expected to increase with faster economic growth. A regression of immigration from 1992-2014 on the unemployment rate is estimated as 0.3412 -0.0609 * URate with an R^2 of 8.93.[44] From this, immigration flows under the CBO unemployment projections and the Sanders unemployment rate are compared. Immigrant workers are assumed to be 49% of immigrants, which comes from multiplying the adult labor force participation rate of 0.66 by the adult share of the immigrant population, 0.743.[45]

Offsets to expenditure increases: spending on social programs

I use data on spending in the SNAP program and unemployment since 1989 to estimate that the elasticity of safety net spending with respect to unemployment is 5.38.[46] Safety net spending is estimated to be $380 billion in 2015 and in the base case is assumed to rise at the rate of inflation.[47] After estimates of

---

[41] Laurence M. Ball, Daniel Leigh, and Prakash Loungani, "Okun's Law: Fit at Fifty?," Working Paper (National Bureau of Economic Research, January 2013), http://www.nber.org/papers/w18668. The value of Okun's law has been unusually low in the current recovery, only 1.25 2011-14 compared with twice as high for previous recoveries. Had this lower value been used, I would have projected a much faster growth in employment and lower productivity growth.

[42] This is Okun's Law discussed above where the 2.32 coefficient is the average for recovery years 1959-2014.

[43] This is the rate for the recovery in the 1990s. I used the coefficient from this recovery because it is the latest to bring the economy to full employment. Note that the proportion of new employees coming from the unemployed is higher in the current than in past recoveries, contributing to the very slow growth in the labor force during this recovery, a slow growth that the CBO expects to continue. Had a higher value been used, then it would have led to a slower growth in the labor force and a larger reduction in the measured unemployment rate.

[44] Immigration is from Migration Policy Institute tabulations of the U.S. Department of Homeland Security, Office of Immigration Statistics, Yearbook of Immigration Statistics (various years). Available at http://www.dhs.gov/files/statistics/publications/yearbook.shtm.

[45] Bureau of Labor Statistics, "Foreign-Born Workers: Labor Force Characteristics -- 2014," Press Release (Washington, D. C.: Bureau of Labor Statistics, May 21, 2015), http://www.bls.gov/news.release/pdf/forbrn.pdf; ; also see the discussion in "Immigrants in the United States, 2010: A Profile of America's Foreign-Born Population," *Center for Immigration Studies*, accessed January 27, 2013, http://cis.org/2012-profile-of-americas-foreign-born-population.

[46] This is estimated from a regression of the change in enrollment in SNAP on the change in annual average unemployment rates; the R2 is .32. USDA, "Supplemental Nutrition Assistance Program (SNAP)," n.d., http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap; also see the discussion in Dottie Rosenbaum and Brynne Keith-Jennings, "SNAP Costs Declining, Expected to Fall Much Further. Trend Reflects Recent Benefit Reduction and Lower Caseloads" (Washington, D. C.: Center on Budget and Policy Priorities, February 9, 2015), http://www.cbpp.org/research/snap-costs-declining-expected-to-fall-much-further.

[47] This is spending on income support other than federal retirement, Office of Management and Budget, "Analytical Perspectives, Budget of the United States Government, Fiscal Year 2016" (Washington, D. C.: Executive Office of the President, 2015), https://www.whitehouse.gov/omb/budget/Analytical_Perspectives.

the effect of each program on GDP and employment and unemployment have been made, this offset is estimated.

In several cases, the Sanders program would replace at least some of existing spending. Free tuition, for example, would replace much of the Pell Grant program, and a higher minimum wage would replace some of the Earned Income Tax Credit. These are discussed below for each case in particular.

Offsets to expenditure increases: tax expenditures

Some expenditure programs would reduce tax deductions or credits now claimed. The projected cost of these programs is taken from the Budget of the United States, 2015.[48]

Offsets to expenditure increases: taxes

It is assumed that increases in income will, in general, produce an increase in federal ,state, and local taxes of 30%. In the case of low income people, it is assumed that there will be no marginal federal income tax but other taxes will increase by 20%, for the value of the social security tax and state and local sales and income taxes.[49]

Bonus income and behavioral effects

In general, I have assumed only one behavioral change, an inflow into the labor force in response to employment growth both from demographic factors and the return to the labor force of discouraged workers. Some of the proposed programs will boost future productivity, including improvements in higher education.[50] I have included estimates of productivity enhancements only for one, physical infrastructure.

Inflation

- I have assumed the CBO projection of inflation. To this, I added the impact of regulatory programs, assuming the following share of increasing wages will become price increases (see Table 7).

Table 7. Effect of regulatory programs on price inflation.

Regulatory program	Share of Increase in Prices
Minimum wage	25%
Overtime	50%
Pay equity	50%
EFCA	10%

[48] Treasury of the United States, "Tax Expenditures FY2015."

[49] The burden of state and local taxation is based on "| The Institute on Taxation and Economic Policy (ITEP)," *The Institute on Taxation and Economic Policy (ITEP)*, accessed January 15, 2015, http://www.itep.org/whopays/.

[50] For examples of the extensive literature on human capital productivity, see Nancy Folbre, *Saving State U: Why We Must Fix Public Higher Education* (New York: New Press, 2010); Claudia Dale Goldin and Lawrence F Katz, *The Race between Education and Technology* (Cambridge, Mass.: Belknap Press of Harvard University Press, 2008); Hilary W. Hoynes, Diane Whitmore Schanzenbach, and Douglas Almond, "Long Run Impacts of Childhood Access to the Safety Net," Working Paper (National Bureau of Economic Research, November 2012), http://www.nber.org/papers/w18535.

- I assume that the carbon tax increase will raise prices by the share of revenue of total GDP, mitigated by some price elasticity. I assume that price increases will be reduced by half the elasticity of demand where the short-run (two-year) elasticity is -.1 and the long-term is -.45.[51]

[51] Carol A. Dahl, "A Survey of Energy Demand Elasticities in Support of the Development of the NEMS," MPRA Paper (University Library of Munich, Germany, 1993), https://ideas.repec.org/p/pra/mprapa/13962.html; Justin Gillis, "Fixing Climate Change May Add No Costs, Report Says," *The New York Times*, September 16, 2014, http://www.nytimes.com/2014/09/16/science/earth/fixing-climate-change-may-add-no-costs-report-says.html.

Appendix 2: Programs

Expenditure programs

Infrastructure ("Rebuild America Act")

Senator Sanders has proposed spending $1 trillion over 5 years on infrastructure, including roads and bridges, alternative energy, pollution abatement, railroads, and mass transit.

- I estimate annual expenditures will start at $100 billion in the first year (2017) and increase by $50 billion a year until it reaches $300 billion in the last year (2021).
- I assume that there are no tax expenditure offsets.[52] I assume that infrastructure maintenance will fall each year by 1% of the cumulative spending with the Federal government's share of this coming to 40%.[53]
- I assume that the rate of return on infrastructure investments is 2.5% of cumulative investment. I add this to GDP.

Private pension funds

Senator Sanders has proposed $29 billion in support for the Pension Benefit Guarantee Corporation. I assume that these funds would be dispersed over three years (2017-19) and would replace three years of higher insurance premiums, allowing for $10 billion, $10 billion, and $9 billion in additional disposable income for the companies covered.

Free public college tuition

Senator Sanders has proposed $750 billion over 10 years to provide free tuition at public colleges and universities.

- I estimate that this program would start at $64 billion in 2017 and increase at the rate of inflation plus 1%.
- Spending would be offset by a reduction in half of Pell Grant funding for public university students.[54]

---

52 The program is funded with revenue from the "Corporate Tax Dodging Prevention Act". By reducing the cost of business and reducing damage to business vehicles, infrastructure repair will generate additional tax revenues. These are not included here.

53 Only 40% of federal nondefense investment in physical structures is directly by the federal government, the rest is in grants to the states. The return on these investments is discussed in Congressional Budget Office, "Federal Investment" (Congressional Budget Office, December 2013), https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44974-FederalInvestment.pdf; Edward M. Gramlich, "Infrastructure Investment: A Review Essay," *Journal of Economic Literature* 32, no. 3 (September 1, 1994): 1176–96; "A NEW ECONOMIC ANALYSIS OF INFRASTRUCTURE INVESTMENT A REPORT PREPARED BY THE DEPARTMENT OF THE TREASURY WITH THE COUNCIL OF ECONOMIC ADVISERS," March 23, 2012, http://www.treasury.gov/resource-center/economic-policy/Documents/20120323InfrastructureReport.pdf.

54 Funding projections are from "Pell Grant Programs - Baseline Projections," *Congressional Budget Office*, accessed October 2, 2015, https://www.cbo.gov/publication/44199; the share of public college students in total Pell funding is from "Digest of Education Statistics, 2014," accessed October 2, 2015, http://nces.ed.gov/programs/digest/d14/tables/dt14_331.37.asp.

- It is assumed that tax expenditures would disappear for 60% of the deductibility of qualified tuition.[55]
- I assume that there would be a reduction in college loans equal to 19.4% of program spending, and this comes off of the fiscal stimulus.[56]

Paid leave

Senator Sanders proposes $320 billion to fund family and medical leave. I estimate that this would cost $27 billion in 2017, rising at the rate of increase in nominal wages to $37 billion in 2026. Since there is no existing program, there is no tax expenditure or spending offset.[57]

Social Security

I estimate the effect of indexing social security to the CPI-E rather than the CPI-U. Over the past decade, the CPI-E has risen by 0.2% a year faster; I have applied this to projected spending.[58]

The full cost of the Sanders Social Security program has been estimated by the Social Security actuary, and I have used these estimates with the adjustment that benefit and tax increases are pushed back until after January 20, 2017.[59]

I assume that the higher Social Security payments will move the elderly and disabled earning already above the poverty line above the level for SNAP benefits.[60] This will lower spending on SNAP by about $500 million in 2017, rising with inflation to over $600 million in 2026.

Youth jobs ("Employ Young Americans Now")

Senator Sanders proposes $5.5 billion for youth summer employment for 2017 and 2018. There are no tax expenditure or spending offsets.

Health care: Medicare-for-All

Projected health care spending under the current regime is from the Centers for Medicare and Medicaid Statistics.[61] The impact of single payer in 2017 is projected using the methodology in Friedman's study

---

[55] Treasury of the United States, "Tax Expenditures FY2015."
[56] Sallie Mae Bank and Ipsos Public Affairs, "How America Pays for College 2015 Sallie Mae's National Study of College Students and Parents" (Sallie Mae Bank, 2015), 16, http://news.salliemae.com/files/doc_library/file/HowAmericaPaysforCollege2015FNL.pdf.
[57] Note that the program has a dedicated revenue source, a 0.2% increase in the payroll tax paid by employers and employees.
[58] Office of the Chief Actuary, Social Security, "Estimate of the Financial Effects on Social Security of S. 1940, the 'Safeguarding American Families and Expanding Social Security Act of 2015,' Legislation Introduced on August 5, 2015 by Representative Brian Schatz," August 24, 2015, https://www.socialsecurity.gov/OACT/solvency/BSchatz_20150824.pdf.
[59] Sanders, "S.731 - 114th Congress (2015-2016)"; Office of the Chief Actuary, Social Security, "Estimates of the Financial Effects on Social Security of S. 731," March 26, 2015, https://www.ssa.gov/oact/solvency/BSanders_20150323.pdf.
[60] Data on expenditures and recipients are from USDA, "Supplemental Nutrition Assistance Program (SNAP)."
[61] Center for Medicaid and Medicare Statistics, "National Health Expenditure Projections 2013-2023" (Washington, D. C.: Centers for Medicare & Medicaid Services, Office of the Actuary, n.d.), http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2013.pdf.

of HR 676.[62] Expenditure growth is assumed to slow under single payer by 1.1 percentage points a year, the difference between the rate of growth in private health insurance costs and Medicare since 1971.

Details are in a separate Appendix.

Regulations

The stimulus from regulator changes is in Table 9. In general, the assumption is that wages have a multiplier of 0.9 compared with a multiplier of 0.35 for profits accruing to high-income persons.[63] A wage increase coming out of profits, therefore, has a multiplier of 0.55.

Raising the minimum wage to $15/hour by 2020.

- The distribution of workers by wage is from the Current Population Survey.[64]
- I assume that the minimum wage will rise to $10/hour in 2018, $12.50 in 2019, and $15 in 2020. All workers making less than these levels will be raised to the minimum.
- Spillover effects are based on the study of living wage ordinances in Pollin, et al.[65]
- Spending offsets for the EITC are calculated from elasticities of EITC spending with respect to income.[66] The elasticity is only -0.18 for the first increase, but rises steeply to -0.71 and -1.38 for the later increases because recipients move up towards the EITC cut-off.
- The elasticity of SNAP spending is assumed to be -0.19.[67]

Offsets on the minimum wage:

- I assume that 25% of the increased cost will be covered by price increases; only 75% of the increased wages counts towards stimulating GDP growth.
- I assume that 25% of the increased cost comes from profits, and these are assumed to lower spending by higher income people with a multiplier of 0.35.

---

62 "Friedman Analysis of HR 676."

63 Congressional Budget Office, "How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy."

64 Irene Tung, Paul Sonn, and Yannet Lathrop, "The Growing Movement for $15 |," accessed November 11, 2015, http://nelp.org/publication/growing-movement-15/; Steve Goldstein, "A Majority of Americans Make Less than $20 per Hour," *MarketWatch*, accessed November 11, 2015, http://www.marketwatch.com/story/a-majority-of-americans-make-less-than-20-per-hour-2014-11-14; "The Effects of a Minimum-Wage Increase on Employment and Family Income," *Congressional Budget Office*, accessed May 22, 2015, https://www.cbo.gov/publication/44995; Bureau of Labor Statistics, "Characteristics of Minimum Wage Workers, 2014" (Washington, D. C.: Bureau of Labor Statistics, April 2015).

65 Pollin, *A Measure of Fairness*. Also see "The Effects of a Minimum-Wage Increase on Employment and Family Income."

66 Levels of the EITC at different income for different family sizes are from http://www.efile.com/what-is-the-earned-income-tax-credit-eitc-eic-eligibility-schedule-calculator/. Also see "Earned Income Tax Credit (EITC) Interactive and Resources," *The Brookings Institution*, accessed November 12, 2015, http://www.brookings.edu/research/interactives/eitc; Center on Budget and Policy Priorities, "Policy Basics: The Earned Income Tax Credit" (Washington, D. C.: Center on Budget and Policy Priorities, November 4, 2015), http://www.cbpp.org/research/federal-tax/policy-basics-the-earned-income-tax-credit.

67 Rachel West et al., "The Effects of Minimum Wages on SNAP Enrollments and Expenditures," *Name*, accessed November 11, 2015, https://www.americanprogress.org/issues/economy/report/2014/03/05/85158/the-effects-of-minimum-wages-on-snap-enrollments-and-expenditures/.

- I assume there is no employment loss from raising the minimum wage to $10 but the elasticity of labor demand is -0.1 for the increase to $12.50 and -0.2 for the increase to $15.00.

Overtime rules

- The new overtime rules are assumed to cover 13.5 million workers who now work a daily average of 0.9 hours of overtime.[68]
- It is assumed that overtime will decline by 40% with this rule.
- To understate the fiscal impact, it is assumed that these workers are paid the average for all workers.
- I assume that 50% of the increased cost goes to higher prices and 50% comes from profits, and these are assumed to lower spending by higher income people with a multiplier of 0.35.

Workplace Democracy Act (EFCA)

- Union membership for the coming decade is estimated assuming that membership will continue to decline at the same rate as it has for the past 31 years.
- It is assumed that the union wage effect for new members will be the same as the average now, or 13.6%.[69]
- It is assumed that membership will increase under the EFCA because organizing will increase and all workers in establishments with organizing will join unions. Organizing is assumed to increase as in the experience of British Columbia when it went from card-check to elections and back.[70]
- The EFCA is assumed to increase union membership in 2026 by 1,492,000. Despite the EFCA, membership will continue falling from 14,136,000 in 2016 to 13,886,000 in 2026.
- I assume that the union productivity effect will cover 80% of the wage increase with 10% coming from profits and 10% from higher prices.[71]

---

[68] This is a little more inclusive than the Obama proposal; see "Raising the Overtime Threshold Would Directly Benefit 13.5 Million Workers: Here Is a Breakdown of Who They Are," *Economic Policy Institute*, accessed November 11, 2015, http://www.epi.org/publication/breakdownovertimebeneficiaries/; Michael D. Shear and Steven Greenhouse, "Obama Will Seek Broad Expansion of Overtime Pay," *The New York Times*, March 11, 2014, http://www.nytimes.com/2014/03/12/us/politics/obama-will-seek-broad-expansion-of-overtime-pay.html; "Why It's Time to Update Overtime Pay Rules: Frequently Asked Questions," *Economic Policy Institute*, accessed November 11, 2015, http://www.epi.org/publication/time-update-overtime-pay-rules-answers-frequently/.

[69] "Unions, Inequality, and Faltering Middle-Class Wages," *Economic Policy Institute*, accessed November 11, 2015, http://www.epi.org/publication/ib342-unions-inequality-faltering-middle-class/.

[70] "Election Reports | NLRB," accessed November 11, 2015, https://www.nlrb.gov/reports-guidance/reports/election-reports; Dorrien Warren, "Union Organizing In National Labor Relations Board Elections" (Roosevelt Institute, October 7, 2015), http://rooseveltinstitute.org/wp-content/uploads/2015/10/Union-Organizing-In-National-Labor-Relations-Board-Elections.pdf; Chris Riddell, "Union Certification Success under Voting Versus Card-Check Procedures: Evidence from British Columbia, 1978-1998," *Industrial and Labor Relations Review* 57, no. 493 (2004).

[71] Freeman, *What Do Unions Do?*; Christos Laroche, Patrice Doucouliagos, "What Do Unions Do to Productivity? A Meta-Analysis," *IREL Industrial Relations: A Journal of Economy and Society* 42, no. 4 (2003): 650–91; Charles Medoff, James Brown, "Trade Unions in the Production Process," *Journal of Political Economy* 86, no. 3 (1978): 355–78; "Unions, Inequality, and Faltering Middle-Class Wages."

Paycheck Fairness

The median weekly salary of women working full-time is 82.5% that of men. I assume that the Paycheck Fairness Act will raise women's wages by 1% relative to men's, and there will be an increase of 0.2% a year for the next decade.[72]

- I assume that 50% of the increased cost goes to higher prices and 50% comes from profits, and these are assumed to lower spending by higher income people with a multiplier of 0.35.

Climate change

- 83% of the revenue from the Carbon Tax is returned as per-capita payments to the poorest 80% of households. This payment is discounted from the annual Carbon Tax.
- Senator Sanders has proposed a variety of other spending programs to increase energy efficiency and ameliorate the damages from climate change. These programs and their ten-year costs are listed in Table 7.[73]

Table 8. Climate change spending programs

Program	10 year budget ($billions)
Weatherization	$ 15
Energy Efficiency and Conservation Block Grant	$ 15
Climate resiliency projects	$ 200
Rural Energy For America Program	$ 5
Improving soil quality through increases in soil carbon	$ 3
NOX emissions reduction	$ 2
Clean Energy Worker Transition	$ 41

Tax program

The new proposed taxes are given in Table 10.

Paying for Family Leave

- Paid family leave would be funded with an increase in the payroll tax of 0.2% on both employers and employees.[74] Revenues are calculated by multiplying the tax base (including the impact of including wage income above $250,000) by 0.4%.

---

[72] These assumptions are completely arbitrary.

[73] These are listed in the "American Clean Energy Investment Act," the "Climate Protection and Justice Act," and the "Clean Energy Worker Just Transition Act".

[74] Kirsten Gillibrand, "The American Opportunity Agenda: Expand Paid Family and Medical Leave," n.d., http://www.gillibrand.senate.gov/issues/paid-family-medical-leave.

Social Security

- The revenue impact is from the Social Security Administration, Office of the Chief Actuary.[75] These are given as a share of taxable payroll; taxable payroll has been assumed to increase in the absence of changes in the law at the rate of increase in wages from the Congressional Budget Office.
  - Revenue increases are offset by additional social security payments to upper income households based on higher social security tax receipts. It is assumed that these will come to 37.5% of additional receipts, and I assume that 4% of workers retire each year beginning in 2018.
  - Revenue increases are also offset by a reduction in income tax revenue when wages fall to offset the greater employer cost of Social Security. I assume that the marginal income tax rate is 30%.

Corporate Tax Dodging Prevention Act

- It is assumed that revenues from the "Corporate Tax Dodging Prevention Act" will have no effect on domestic spending because they come from income outside the United States.[76]

Climate taxes

- A carbon tax proposal is in the "Climate Protection and Justice Act." This is roughly estimated to generate $1.1 trillion in revenue over the first decade.
- The same act includes a border tariff adjustment mechanism, sometimes called a "green tariff," to discourage firms from simply relocating carbon intensive production outside the United States. Since no dollar figure is provided for this program, I have ignored it here.
- Revenue offsets are included in the "American Clean Energy Investment Act" including the extension of various tax credits and deductions for clean energy investments by businesses and consumers. The annual value of these is projected from the President's budget; for expiring benefits, I have assumed that they would continue under the Sanders program at previous rates of increase for $75 billion over 10 years.[77]

Financing health care

- The revenue from ending tax expenditures on health insurance premiums and other programs is from the US Treasury.[78] It is assumed that tax expenditures will decline by the ratio of the decline in health insurance payroll premiums as a share of previous health expenditures.
  - The share of payroll paid in health insurance premiums is from the CMS, National Health Expenditures; the employer share of private health insurance is from the National Institute of Health Care Management.[79]

---

[75] Office of the Chief Actuary, Social Security, "Estimates of the Financial Effects on Social Security of S. 731."
[76] The act may *increase* domestic demand by requiring the repatriation of revenues currently held outside the United States.
[77] Treasury of the United States, "Tax Expenditures FY2015."
[78] Ibid.
[79] Center for Medicaid and Medicare Statistics, "National Health Expenditure Projections 2013-2023"; National Institute for Health Care Management, "Spending for Private Health Insurance in the United States," Data Brief (National Institute for Health Care Management, January 2013),

- The revenue from payroll taxes and income taxes is estimated from the IRS for 2014 updated by assuming population growth and GDP are uniform across all income levels.[80]
- Revenue from taxing capital gains as personal income and capping deductions are included towards health care.
- Revenue (75%) from the Financial Transactions Tax and all of the Responsible Estate Tax are included towards health care.

Table 9. Funding Medicare-for-All program, average annual funding over 2017-26.

Additional Federal Spending	$	1,377
Reduced tax expenditures	$	320
2.2% income-based premium on households	$	210
Payroll at 6.20% income based health care premium paid by employers	$	630
Responsible Estate Tax Act	$	21
Taxing capital gains as regular income	$	92
Capping high-income tax deductions	$	15
Progressive income tax rates	$	110
Net (surplus)	$	(21)

Financial Transactions Tax

- Revenue estimates are one quarter of projected revenue from Robert Pollin.[81]

Burden of taxes

- Other taxes are assumed to reduce effective demand with a multiplier of 0.35, the average value of the multipliers used for high-income people by the CBO.[82]

---

http://www.nihcm.org/images/stories/Spending_for_Private_Health_Insurance_Rev.pdf. See also Andrea M. Sisko et al., "National Health Spending Projections: The Estimated Impact Of Reform Through 2019," *Health Affairs* 29, no. 10 (October 1, 2010): 1933–41, doi:10.1377/hlthaff.2010.0788; Sean P. Keehan et al., "National Health Expenditure Projections, 2014–24: Spending Growth Faster Than Recent Trends," *Health Affairs*, July 28, 2015, 10.1377/hlthaff.2015.0600, doi:10.1377/hlthaff.2015.0600.

[80] Internal Revenue Service, "SOI Tax Stats - Historical Table 1" (Washington, D. C.: United States Government, Internal Revenue Service, May 9, 2014), http://www.irs.gov/uac/SOI-Tax-Stats-Historical-Table-1.

[81] Dean Baker et al., "The Potential Revenue from Financial Transactions Taxes," Political Economy Research Institute Working Paper Series (Amherst, MA.: Political Economy Research Institute, University of Massachusetts at Amherst, December 2009). Scholars at the Tax Policy Center estimate that the FTT would generate over $800 billion in 10 years, more than the $750 billion I include here. Leonard Burman et al., "Financial Transaction Taxes: An Overview" (Washington, D.C: Tax Policy Center, January 2016), 8, http://www.taxpolicycenter.org/UploadedPDF/2000587-financial-transaction-taxes.pdf.

[82] Congressional Budget Office, "How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy."

Appendix III: Wages, poverty, inequality

Wages

Projections of wage levels are based on regressions of changes in average annual real wages on changes in employment for 1959-2014. The regression is: (% Change in Wage) = 0.4254 (% Change in Employment) + 0.0007
$R^2 = 0.1963$

The impact of the regulatory changes is included by adding to the average wage the average impact of these changes.

It is assumed that workers will save their share of health insurance premiums beginning in 2017 and they will pay 50% of the payroll tax in 2017 rising to 100% by 2021. It is assumed that competitive labor markets will lead employers to pay in higher wages a growing share of what they would otherwise have paid in health insurance premiums, increasing incrementally from 10% in 2017 up to 90% in 2026. Expenditures on employer-provided health insurance are from the Medical Expenditure Panel Survey.[83]

Poverty rates

Poverty rates for the baseline, CBO, are projected from a regression of the change in the poverty rate as a function of the change in real wages and the change in the unemployment rate for 1960-2014. The regression is:

For all people's poverty rate:

Change in poverty rate = .005175+0.00066*(change in real wage)+0.264728*(change in unemployment rate)

Adjusted R2=.5677

The effect of the Sanders program is estimated for different elements of the poor, including the elderly, the disabled, full-time workers and their families, part-time workers and their families, and non-workers and their families. The following assumptions are used for each group:

- *Elderly poor:* It is assumed that 10% take-up Social Security each year and benefit increases in the Sanders program will take them out of poverty.[84]
- *Disabled*: It is assumed that 5% take-up Social Security each year and benefit increases in the Sanders program will take them out of poverty.
- *Full-time workers and family members*: It is assumed that they all will be removed from poverty when the minimum wage reaches $15/hour. It is assumed that the average family size is 3.35, the average for working poverty households.
- *Part-time workers and family members:* It is assumed that 75% will be removed from poverty when the minimum wage reaches $15/hour. It is assumed that the average family size is 3.35, the average for working poverty households.

---

[83] Agency for Healthcare Research and Quality, "Medical Expenditure Panel Survey," 2014, http://www.meps.ahrq.gov/mepsweb/data_stats/state_tables.jsp?regionid=18&year=-1.
[84] Average longevity on Social Security is about 10 years for the elderly poor; it is twice as long for the disabled.

- *Nonworking:* It is assumed that their labor-force participation rate will increase at 2% a year above the rate of growth in the national employment rate and that working will lift them out of poverty once the minimum wage is raised to $15/hour. It is assumed that household size is 2.02, the average for nonworking poverty households.

The number of children remaining in poverty in 2026 is estimated from the data in Table 8 and the family size information give above on the assumption that each household has one adult.

Table 10. Estimates of poverty rate, Sanders program, for different parts of the poverty population. Share of total population who are poor by year and group.

	CBO	Sanders						
		Elderly	Disabled	Full-time workers and family	Part-time workers and family	Nonworking	Sanders	reduction
2016	14.6	1.4	1.4	2.3	5.2	4.3	14.6	0.0%
2017	14.1	1.4	1.3	2.2	5.0	4.0	13.9	1.4%
2018	13.5	1.3	1.3	1.0	3.6	3.7	10.9	18.7%
2019	12.9	1.3	1.2	0.0	2.3	3.5	8.2	36.0%
2020	12.3	1.1	1.1	0.0	1.1	3.2	6.5	46.6%
2021	12.0	1.0	1.1	0.0	1.1	3.1	6.1	48.7%
2022	11.7	0.8	1.0	0.0	1.0	2.9	5.8	50.5%
2023	11.4	0.7	0.9	0.0	1.0	2.8	5.5	52.2%
2024	11.1	0.6	0.8	0.0	1.0	2.7	5.1	53.8%
2025	10.8	0.6	0.8	0.0	1.0	2.5	4.9	55.2%
2026	10.5	0.5	0.7	0.0	0.9	2.4	4.6	56.5%

Median income

- Median household income is assumed to increase with the rise in per capita income plus the annual percentage change in household size.
  - Household size under the CBO economic growth is assumed to fall at the rate of the 1970s-1993, a period of slow growth; under the Sanders growth regime, it is assumed to fall at the average rate of the 1960s and the 1990s, periods of faster growth.
- In addition, median income (that is the income of the household at the 50th percentile) is assumed to increase at the average rate of transfer from the top 5% to the middle 75% due to tax increases at the top 5%, including the impact of the carbon tax.
  - Total transfers to the middle 75% are assumed to be total transfers from the top 5% minus those going to the bottom 20%.

Table 11. Projections of median household income from increases in per capita income and fiscal redistribution.

Median household income	CBO baseline	Sanders
2014	$ 53,657	$ 53,657
2026, economic growth	$ 59,336	$ 73,380
2026, with taxes and regulations	$ 59,336	$ 80,032

Inequality

Income for the top 5% and the bottom quintile is projected based on a regression of annual income for 1967-2014.

For the top 5%, the regression is (Change in income) = 0.7694 (Employment growth) + 0.0039
$R^2 = 0.1022$

For the bottom 20%, the regression is (Change in income)= = 1.1308(Employment growth) - 0.0163
$R^2 = 0.5478$

Income for the bottom 20% is then adjusted by including the income gains accruing to the bottom 17% of wage earners from the minimum wage and 20% of the wage gains from other regulatory programs. Income is reduced by their share of additional taxes, estimated to be 3.6%.[85]

Income for the top 5% is reduced by 47.75%, the additional taxes, the share paid by the top 5% of filers.[86]

Income for the top 5% is reduced by the amount of profits lost when private health insurance is eliminated and by 50% of the reduction in prices for prescription drugs due to savings in the Improved Medicare-for-All program. It is also assumed that the income for the top 5% rises by their share of health insurance premiums.

Income for the top 5% is reduced by their expected spending on the carbon tax. Energy use by income is from the Census Bureau.[87]

[85] Estimated from income data in Internal Revenue Service, "SOI Tax Stats - Historical Table 1."
[86] Estimated from income data in ibid.
[87] US Census Bureau, "Supplemental Measures of Material Well-Being: Basic Needs, Consumer Durables,Energy, and Poverty, 1981 to 2002," Current Population Reports (Washington, D. C.: United States Census Bureau, December 2005), https://www.census.gov/prod/2005pubs/p23-202.pdf.

Appendix IV: Financing Medicare-for-All

Costs under existing system

I base estimates of future health care spending on the projections of National Health Expenditures from the CMS going through 2024. For 2025 and 2026, I project the 2024 numbers forward assuming spending will continue to grow at the average rate of 2015-24, or 5.7% (see Table 1).[88] I have used the same procedure to estimate out-of-pocket, private insurance, and public spending.

Table 12. Projected spending, 2015-26, existing health care system (in $billions)

	CMS			Outofpocket	Private insurance	Public
	Old projection	New	Change			
2015	3417.9	$3,244	$174	$ 351	$ 1,085	$ 1,807
2016	3632	$3,403	$229	$ 361	$ 1,140	$ 1,903
2017	3849.5	$3,587	$263	$ 376	$ 1,198	$ 2,013
2018	4080	$3,786	$295	$ 393	$ 1,258	$ 2,134
2019	4346.5	$4,020	$327	$ 415	$ 1,329	$ 2,276
2020	4638.4	$4,274	$365	$ 438	$ 1,406	$ 2,430
2021	4927.454	$4,543	$385	$ 463	$ 1,489	$ 2,591
2022	5234.52	$4,825	$409	$ 489	$ 1,572	$ 2,764
2023	5560.722	$5,119	$441	$ 515	$ 1,658	$ 2,946
2024	$5,910	$5,425	$484	$ 543	$ 1,746	$ 3,136
2025	$6,280	$5,744	$536	$ 570	$ 1,841	$ 3,334
2026	$6,674	$6,082	$592	$ 598	$ 1,941	$ 3,544
Sum	$58,551	$54,051	$4,500	$ 5,511	$ 17,664	$ 30,878
			92%			
	6.1%	5.7%		4.8%	5.3%	6.1%

Single payer costs

I make three adjustments to the projected costs: savings, additional expenditure, and dynamic savings over time.

First, I assume an immediate savings from the reduced administrative costs and lower prescription drug prices with a single payer system. I assume the system would be fully implemented in 2017 and would achieve administrative savings by:

1. *Reducing sponsor overhead, that is the share of insurance administration of total spending to a little above the Medicare level.* This means the Medical Loss Ratio would be raised to 98% for all coverage.

[88] https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nationalhealthaccountsprojected.html

2. *Reducing provider overhead to the Canadian administrative level.* The Canadian rate is estimated from Himmelstein and Woolhandler.[89]
3. *Lowering US drug prices to the average level of other OECD member states.* The world level is estimated from McKinsey Global Institute.[90]

The share of spending that would be saved is in Table 2; the estimation procedure is described in my 2013 paper on funding HR 676.[91]

Table 13. Projected savings rates for US health care with single payer.[92]

	Savings rate
Hospital care	9.4%
Physicians and clinical services	10.7%
Other professional services	9.0%
Dental services	9.0%
Home health care	19.2%
Nursing home care	7.0%
Other personal health care	10.7%
Savings on pharmaceuticals	37.5%

Additional spending with Medicare-for-All

Medicare for All involves additional spending in three areas:

1. *Extension of coverage to the 29 million projected to remain uninsured in 2017.* I assume that the uninsured currently spend 55% as much on health care as the insured and would spend 80% with insurance; the lower spending is based on the age distribution of the uninsured.[93]
2. *Improved access for those with insurance.* I assume that the removal of copayments and deductibles will lead to an increase in utilization of 3% for most personal health expenditures along with a 22% increase in dental spending, a 40% increase in home health care spending, and

[89] Steffie Woolhandler, Terry Campbell, and David Himmelstein, "Cost of Health Care Administration in the United States and Canada," *New England Journal of Medicine*, no. 349 (2003): 768–75. Also see Steffie Woolhandler and David Himmelstein, "Administrative Work Consumes One-Sixth of U.S. Physicians' Working Hours and Lowers Their Career Satisfaction," *International Journal of Health Services* 44, no. 4 (January 1, 2014): 635–42, doi:10.2190/HS.44.4.a; Aliya Jiwani et al., "Billing and Insurance-Related Administrative Costs in United States' Health Care: Synthesis of Micro-Costing Evidence," *BMC Health Services Research* 14, no. 556 (2014), http://www.biomedcentral.com/content/pdf/s12913-014-0556-7.pdf.

[90] McKinsey Global Institute, "Accounting for the Cost of Health Care in the United States," January 2007, http://www.mckinsey.com/mgi/rp/healthcare/accounting_cost_healthcare.asp.

[91] "Friedman Analysis of HR 676."

[92] Note that this is modified from Table 3 in my 2013 study.

[93] Jack Hadley and John Holahan, "The Cost of Care for the Uninsured: What Do We Spend, Who Pays, and What Would Full Coverage Add to Medical Spending" (Kaiser Commission on Medicaid and the Uninsured, May 10, 2004), http://www.kff.org/uninsured/upload/The-Cost-of-Care-for-the-Uninsured-What-Do-We-Spend-Who-Pays-and-What-Would-Full-Coverage-Add-to-Medical-Spending.pdf.

a 20% increase in nursing home care. In all, this gives a 5% increase in utilization overall. After taking out Medicaid, where there are no copayments or deductibles, and hospitalization, where patients have little discretion in utilization, this is an assumed 10% increase in utilization (see Table 3).

Table 14. Magnitude of assumed increase in utilization, spending increase with single payer as share of non-single payer spending.

Share of personal health care	5%
Share of non-Medicaid	6%
Share of non-Medicaid, non-Hospital, non-Administration	10%

3. *Medicaid rate equity.* Establishing a single-payer system would necessarily mean that all providers would be paid from the same source with the same rates. This would end the discrimination against Medicaid providers. Medicaid rates are now 34% below those paid by Medicare, and it is assumed that they would rise to parity.[94]

Net change in spending with Improved Medicare-for-All

In my estimates for 2013, there are nearly $600 billion in savings and $400 billion in added costs for a net saving of $200 billion, or nearly 8% reduction. Applying this ratio to 2017 gives savings of $277 billion.

Spending after 2017 is assumed to increase at the projected CMS rate of increase in National Health Expenditures (see Table 1) *minus* 1.1%. This represents the difference between the gap between health care inflation rate in the United States over the past 45 years and the general CPI and that in Canada. It is also the difference between the health care inflation rate for private insurance and the United States' Medicare system.[95]

This gives the series on Medicare-for-All health care spending and savings compared with the current system (see Table 4).

[94] The ACA has provision to raise primary care fees for Medicaid but this program is slated to lose Federal funding and it is unclear how many states will maintain it; "How Much Will Medicaid Physician Fees for Primary Care Rise in 2013? Evidence from a 2012 Survey of Medicaid Physician Fees," accessed July 13, 2013, http://kff.org/medicaid/issue-brief/how-much-will-medicaid-physician-fees-for/. The problem of losing provider participation in Medicaid is serious; see American Academy of Pediatrics, "Medicaid Reimbursement: Medicaid Rates and Provider Participation," July 2009, http://www.sdsma.org/documents/MedicaidSummerStudy.final.pdf.

[95] Himmelstein DU and Woolhandler S, "Cost Control in a Parallel Universe: Medicare Spending in the United States and Canada," *Archives of Internal Medicine* 172, no. 22 (December 10, 2012): 1764–66, doi:10.1001/2013.jamainternmed.272; Gerard F. Anderson et al., "It's The Prices, Stupid: Why The United States Is So Different From Other Countries," *Health Affairs* 22, no. 3 (May 1, 2003): 89–105, doi:10.1377/hlthaff.22.3.89. For statistics, see my paper "The Creation of Waste and the Rising Cost of Health Care, 1970-2014" available upon request.

Table 15. Projected single-payer spending compared with current system, 2015-26 (in $billions).

	CMS projections current system	Improved Medicare-for-All	
		Spending	Savings
2015	$3,244	$ 3,244	$ -
2016	$3,403	$ 3,403	$ -
2017	$3,587	$ 3,310	$ 277
2018	$3,786	$ 3,466	$ 320
2019	$4,020	$ 3,630	$ 390
2020	$4,274	$ 3,801	$ 473
2021	$4,543	$ 3,981	$ 562
2022	$4,825	$ 4,169	$ 657
2023	$5,119	$ 4,366	$ 754
2024	$5,425	$ 4,572	$ 853
2025	$5,744	$ 4,788	$ 956
2026	$6,082	$ 5,014	$ 1,068

Additional public spending

After taking account of savings and additional national health spending, three adjustments to calculate the new Federal spending, and revenues, needed for the Improved Medicare-for-All system.

1. *Current and projected public spending is subtracted under a "maintenance of effort" assumption.*
2. *20% of current and projected out of pocket spending is assumed to continue because it is spent on non-medically necessary activities.* This is assumed to include activities that would not be covered by the program, such as optional cosmetic surgery, supplements, and some hospital and nursing home amenities, such as HBO. This assumption sets the actuarial value of the program at about 98%.
3. *Medicare Part B premiums will be assumed by the program*. The establishment of universal coverage means that seniors currently paying Medicare Part B premiums would have no reason to continue to pay them.[96]

New Federal spending is then calculated as National spending minus projected public spending minus remaining out of pocket plus Medicare Part B premiums.

[96] Note that Medicare Part B premiums paid by Medicaid will not be effected because that spending is already included in the total of projected public spending.

Table 16. Calculation of new federal spending: total minus existing public minus remaining out of pocket plus Medicare Part B premiums (in $billions)

Year	Improved Medicare-for-All Spending	Projected public spending	Out of pocket	Medicare Part B	New public
2015	$ 3,244	$ 1,807	$ 351	$ 59	
2016	$ 3,403	$ 1,903	$ 361	$ 62	
2017	$ 3,310	$ 2,013	$ 75	$ 64	$ 1,286
2018	$ 3,466	$ 2,134	$ 79	$ 67	$ 1,321
2019	$ 3,630	$ 2,276	$ 83	$ 71	$ 1,341
2020	$ 3,801	$ 2,430	$ 88	$ 74	$ 1,358
2021	$ 3,981	$ 2,591	$ 93	$ 78	$ 1,375
2022	$ 4,169	$ 2,764	$ 98	$ 82	$ 1,389
2023	$ 4,366	$ 2,946	$ 103	$ 86	$ 1,403
2024	$ 4,572	$ 3,136	$ 109	$ 90	$ 1,418
2025	$ 4,788	$ 3,334	$ 114	$ 95	$ 1,435
2026	$ 5,014	$ 3,544	$ 120	$ 99	$ 1,449
Sum	$ 47,741	$ 30,878	$1,671	$ 928	$ 13,773

Sources of new revenue

While the nearly $14 trillion in new spending requires a large increase in Federal revenue, there are a variety of sources that could be utilized.

1. *Current tax expenditures*. The Federal government now subsidizes the private health insurance system through the tax code. The largest such subsidy is for the employer-provided health insurance premiums but there are other smaller subsidies such as the deductibility of health care expenses above 10% of adjusted gross income.[97] These subsidies would automatically disappear with the new program *except* to the extent that it relies on a deductible employment based payroll tax. In the Sanders program, an additional $3 trillion in revenue becomes available through the reduction in tax expenditures.
    a. *The change in tax expenditures is calculated assuming a 6.2% payroll premium.* For each year, employment-based health insurance premiums as a share of payroll has been calculated. The difference between this ratio and 6.2% is the share of employment-related tax expenditures that would disappear.
    b. *Other tax expenditures are assumed to disappear completely*. These include the deductibility of high medical expenses, and a few smaller items.

[97] Treasury of the United States, “Tax Expenditures FY2015.”

Table 17. Calculation of tax expenditure savings (in $millions)

Year	Tax expenditures			Reduced Tax expenditures			
	Insurance	MSA	Other (net)	Insurance	MSA	Other (net)	Total
2017	$ 370,650	$ 6,720	$ 8,670	$ 215,870	$ -	$ 8,670	$ 224,540
2018	$ 385,820	$ 7,950	$ 8,950	$ 225,881	$ -	$ 8,950	$ 234,831
2019	$ 407,180	$ 9,440	$ 9,790	$ 240,712	$ -	$ 9,790	$ 250,502
2020	$ 434,070	$ 11,240	$ 11,210	$ 259,110	$ -	$ 11,210	$ 270,320
2021	$ 461,610	$ 13,370	$ 12,890	$ 278,522	$ -	$ 12,890	$ 291,412
2022	$ 490,720	$ 15,900	$ 14,800	$ 298,479	$ -	$ 14,800	$ 313,279
2023	$ 521,910	$ 18,900	$ 17,190	$ 320,385	$ -	$ 17,190	$ 337,575
2024	$ 554,440	$ 22,540	$ 20,200	$ 342,345	$ -	$ 20,200	$ 362,545
2025	$ 589,078	$ 26,881	$ 23,744	$ 366,847	$ -	$ 23,744	$ 390,591
2026	$ 621,045	$ 28,462	$ 25,140	$ 390,847	$ -	$ 25,140	$ 415,988

2. *Other revenues are calculated using data from the staff of the Senate Budget Committee.*

Table 18. Revenue sources for Sanders Improved Medicare-for-All program, annual averages (in $billions)

Additional Federal Spending	$ 1,377
Reduced tax expenditures	$ 309
2.2% income-based premium on households	$ 210
Payroll at 6.20% income based health care premium paid by employers	$ 630
Progressive Income Tax Reforms	
Responsible Estate Tax Act	$ 21
Taxing capital gains and dividends the same as income from work	$ 92
Limit tax deductions of the rich	$ 15
Progressive income tax rates	$ 110
Net (surplus)	$ (10)

Appendix V: Additional tables

Table 19. Annual spending for Sanders expenditure programs (in $bilions)

Year	Infrastructure	Climate	Private Pension Funds	College	Paid leave	Health Care	Social Security		Youth jobs
							Bonus	CPI-E	
2017	$ 100	$ 92	$ 10	$ 64	$ 27	$ 1,286	$ 6	$ 2.0	$ 2.75
2018	$ 150	$ 100	$ 10	$ 66	$ 28	$ 1,321	$ 13	$ 2.1	$ 2.75
2019	$ 200	$ 107	$ 9	$ 69	$ 29	$ 1,341	$ 22	$ 2.2	
2020	$ 250	$ 115	$ -	$ 71	$ 30	$ 1,358	$ 30	$ 2.3	
2021	$ 300	$ 122	$ -	$ 73	$ 31	$ 1,375	$ 41	$ 2.4	
2022	$ -	$ 129	$ -	$ 76	$ 32	$ 1,389	$ 50	$ 2.5	
2023	$ -	$ 137	$ -	$ 79	$ 34	$ 1,403	$ 62	$ 2.6	
2024	$ -	$ 147	$ -	$ 81	$ 35	$ 1,418	$ 76	$ 2.7	
2025	$ -	$ 157	$ -	$ 84	$ 36	$ 1,435	$ 88	$ 2.8	
2026	$ -	$ 168	$ -	$ 87	$ 37	$ 1,449	$ 103	$ 2.9	
10 year total	$ 1,000	$ 1,275	$ 29	$ 750	$ 320	$ 13,773	$ 491	$ 25	$ 5.5

Table 20. Impact of regulatory changes, $billions in increased spending.

Year	Minimum wage		EFCA		Overtime		Paycheck equity: gender fairness	
	Stimulus	Share of CBO GDP	Stimulus	Share of CBO GDP	Share of CBO GDP	Stimulus	Stimulus	Share of CBO GDP
2017	$ -	0.00%	$ 0.93	0.00%	0.09%	$ 17	$ 22	0.11%
2018	$ 42.10	0.20%	$ 1.93	0.01%	0.09%	$ 18	$ 28	0.135%
2019	$ 101.73	0.48%	$ 2.99	0.01%	0.09%	$ 19	$ 35	0.161%
2020	$ 164.71	0.74%	$ 4.13	0.02%	0.09%	$ 19	$ 43	0.194%
2021	$ 169.11	0.73%	$ 5.35	0.02%	0.09%	$ 20	$ 54	0.233%
2022	$ 173.97	0.72%	$ 6.65	0.03%	0.09%	$ 21	$ 68	0.279%
2023	$ 179.09	0.71%	$ 8.02	0.03%	0.09%	$ 22	$ 85	0.335%
2024	$ 167.98	0.64%	$ 9.49	0.04%	0.09%	$ 23	$ 106	0.402%
2025	$ 189.83	0.69%	$ 11.04	0.04%	0.09%	$ 24	$ 133	0.482%
2026	$ 212.57	0.74%	$ 12.67	0.04%	0.09%	$ 25	$ 165	0.579%

Table 21. Tax program ($billions)

Year	Corporate Tax Dodging Prevention Act	Financial Transactions tax	Family leave	Pension protection	Fossil fuel	Social Security cap and taxing nonwage income	Climate	Health care
2017	$ 82	$ 62	$ 29	$ 2	$ 11	$ 120	$ 70	$ 881
2018	$ 86	$ 65	$ 30	$ 2	$ 12	$ 133	$ 77	$ 923
2019	$ 89	$ 67	$ 31	$ 3	$ 12	$ 143	$ 84	$ 960
2020	$ 93	$ 70	$ 32	$ 3	$ 13	$ 152	$ 93	$ 1,002
2021	$ 97	$ 73	$ 33	$ 3	$ 13	$ 162	$ 102	$ 1,048
2022	$ 102	$ 76	$ 34	$ 3	$ 14	$ 172	$ 111	$ 1,095
2023	$ 106	$ 79	$ 35	$ 3	$ 14	$ 183	$ 122	$ 1,141
2024	$ 110	$ 83	$ 37	$ 3	$ 15	$ 196	$ 134	$ 1,193
2025	$ 115	$ 86	$ 38	$ 3	$ 15	$ 208	$ 147	$ 1,244
2026	$ 119	$ 90	$ 39	$ 3	$ 16	$ 222	$ 160	$ 1,295
10 year total	$ 1,000	$ 750	$ 339	$ 29	135	$ 1,692	$ 1,100	$ 10,783

Table 22. Estimated value of multiplier on government spending.

Year	Estimated Multiplier
2015	1.24516
2016	1.01667
2017	0.9
2018	0.79231
2019	0.8765
2020	0.86549
2021	0.85424
2022	0.8439
2023	0.83438
2024	0.75038
2025	0.81583
2026	0.87586

References

"| The Institute on Taxation and Economic Policy (ITEP)." *The Institute on Taxation and Economic Policy (ITEP)*. Accessed January 15, 2015. http://www.itep.org/whopays/.

Agency for Healthcare Research and Quality. "Medical Expenditure Panel Survey," 2014. http://www.meps.ahrq.gov/mepsweb/data_stats/state_tables.jsp?regionid=18&year=-1.

American Academy of Pediatrics. "Medicaid Reimbursement: Medicaid Rates and Provider Participation," July 2009. http://www.sdsma.org/documents/MedicaidSummerStudy.final.pdf.

Anderson, Gerard F., Uwe E. Reinhardt, Peter S. Hussey, and Varduhi Petrosyan. "It's The Prices, Stupid: Why The United States Is So Different From Other Countries." *Health Affairs* 22, no. 3 (May 1, 2003): 89–105. doi:10.1377/hlthaff.22.3.89.

"A NEW ECONOMIC ANALYSIS OF INFRASTRUCTURE INVESTMENT A REPORT PREPARED BY THE DEPARTMENT OF THE TREASURY WITH THE COUNCIL OF ECONOMIC ADVISERS," March 23, 2012. http://www.treasury.gov/resource-center/economic-policy/Documents/20120323InfrastructureReport.pdf.

"An Update to the Budget and Economic Outlook: 2014 to 2024." *Congressional Budget Office*. Accessed October 27, 2014. https://www.cbo.gov/publication/45653.

Atkinson, A. B., and Thomas Piketty, eds. *Top Incomes over the Twentieth Century: A Contrast between Continental European and English-Speaking Countries*. Oxford ; New York: Oxford University Press, 2007.

Auerbach, Alan J., William G. Gale, and Benjamin H. Harris. "Activist Fiscal Policy." *The Journal of Economic Perspectives* 24, no. 4 (October 1, 2010): 141–63.

Baker, Dean, Robert Pollin, Travis McArthur, and Matt Sherman. "The Potential Revenue from Financial Transactions Taxes." Political Economy Research Institute Working Paper Series. Amherst, MA.: Political Economy Research Institute, University of Massachusetts at Amherst, December 2009.

Ball, Laurence M., Daniel Leigh, and Prakash Loungani. "Okun's Law: Fit at Fifty?" Working Paper. National Bureau of Economic Research, January 2013. http://www.nber.org/papers/w18668.

Blinder, Alan S, and Mark Zandi. "How the Great Recession Was Brought to an End." Moody's Analytics, July 27, 2010. https://www.economy.com/mark-zandi/documents/End-of-Great-Recession.pdf.

Brinkley, Alan. *The End Of Reform: New Deal Liberalism in Recession and War*. Reprint edition. Vintage, 2011.

Brown, Charles Medoff, James. "Trade Unions in the Production Process." *Journal of Political Economy* 86, no. 3 (1978): 355–78.

Bureau of Labor Statistics. "Characteristics of Minimum Wage Workers, 2014." Washington, D. C.: Bureau of Labor Statistics, April 2015.

———. "Foreign-Born Workers: Labor Force Characteristics -- 2014." Press Release. Washington, D. C.: Bureau of Labor Statistics, May 21, 2015. http://www.bls.gov/news.release/pdf/forbrn.pdf.

Burman, Leonard, William Gale, Sarah Gault, Bryan Kim, Jim Nunns, and Steve Rosenthal. "Financial Transaction Taxes: An Overview." Washington, D.C: Tax Policy Center, January 2016. http://www.taxpolicycenter.org/UploadedPDF/2000587-financial-transaction-taxes.pdf.

Center for Medicaid and Medicare Statistics. "National Health Expenditure Projections 2013-2023." Washington, D. C.: Centers for Medicare & Medicaid Services, Office of the Actuary, n.d. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2013.pdf.

Center on Budget and Policy Priorities. "Policy Basics: The Earned Income Tax Credit." Washington, D. C.: Center on Budget and Policy Priorities, November 4, 2015. http://www.cbpp.org/research/federal-tax/policy-basics-the-earned-income-tax-credit.

Congressional Budget Office. “Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from October 2012 Through December 2012.” Washington, D. C.: Congressional Budget Office, February 2013. http://www.cbo.gov/sites/default/files/cbofiles/attachments/43945-ARRA.pdf.

———. “Federal Investment.” Congressional Budget Office, December 2013. https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44974-FederalInvestment.pdf.

———. “How CBO Analyzes the Effects of Changes in Federal Fiscal Policies on the Economy.” Washington, D. C.: Congressional Budget Office, November 2014. https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49494-FiscalPolicies.pdf.

Conkin, Paul Keith. *The New Deal*. 2d ed. The Crowell American History Series. New York: Crowell, 1975.

Cowie, Jefferson. *The Great Exception: The New Deal and the Limits of American Politics*. Politics and Society in Twentieth-Century America. Princeton: Princeton University Press, 2016.

Dahl, Carol A. “A Survey of Energy Demand Elasticities in Support of the Development of the NEMS.” MPRA Paper. University Library of Munich, Germany, 1993. https://ideas.repec.org/p/pra/mprapa/13962.html.

“Digest of Education Statistics, 2014.” Accessed October 2, 2015. http://nces.ed.gov/programs/digest/d14/tables/dt14_331.37.asp.

Dixon, R., and A. P. Thirlwall. “A Model of Regional Growth-Rate Differences on Kaldorian Lines.” *Oxford Economic Papers* 27, no. 2 (1975): 201–14.

Doucouliagos, Christos Laroche, Patrice. “What Do Unions Do to Productivity? A Meta-Analysis.” *IREL Industrial Relations: A Journal of Economy and Society* 42, no. 4 (2003): 650–91.

Dube, Arindrajit. “Minimum Wages and the Distribution of Family Incomes.” Working Paper. Amherst, MA., December 30, 2013. https://dl.dropboxusercontent.com/u/15038936/Dube_MinimumWagesFamilyIncomes.pdf.

“Earned Income Tax Credit (EITC) Interactive and Resources.” *The Brookings Institution*. Accessed November 12, 2015. http://www.brookings.edu/research/interactives/eitc.

Eichengreen, Barry. *Hall of Mirrors: The Great Depression, The Great Recession, and the Uses-and Misuses-of History*. 1 edition. New York, NY: Oxford University Press, 2015.

“Election Reports | NLRB.” Accessed November 11, 2015. https://www.nlrb.gov/reports-guidance/reports/election-reports.

Folbre, Nancy. *Saving State U: Why We Must Fix Public Higher Education*. New York: New Press, 2010.

Fraser, Steve, and Gary Gerstle. *The Rise and Fall of the New Deal Order, 1930-1980*. Princeton, N.J.: Princeton University Press, 1989.

Freeman, Richard B. *What Do Unions Do?* New York: Basic Books, 1984.

“Friedman Analysis of HR 676: Medicare for All Would Save Billions - PNHP’s Official Blog.” Accessed January 24, 2014. http://pnhp.org/blog/2013/07/31/friedman-analysis-of-hr-676-medicare-for-all-would-save-billions/.

Friedman, Gerald. “Les États-Providence Américains : Valeurs et Politique Dans La Fabrique Du Système Redistributif Des États-Unis.” *Cycnos: Les études Anglophones* 30 (January 2014): 3–22.

———. *Reigniting the Labor Movement: Restoring Means to Ends in a Democratic Labor Movement*. Abingdon, Oxon: Routledge, 2007.

Galbraith, James K. *Inequality and Instability: A Study of the World Economy Just Before the Great Crisis*. 1 edition. New York, N.Y: Oxford University Press, 2012.

Geoghegan, Thomas. *Only One Thing Can Save Us: Why America Needs a New Kind of Labor Movement*. New York: The New Press, 2014.

Gilens, Martin, and Benjamin Page. “Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens.” *Perspectives on Politics*, Fall 2014. http://www.princeton.edu/~mgilens/Gilens%20homepage%20materials/Gilens%20and%20Page/Gilens%20and%20Page%202014-Testing%20Theories%203-7-14.pdf.

Gillibrand, Kirsten. “The American Opportunity Agenda: Expand Paid Family and Medical Leave,” n.d. http://www.gillibrand.senate.gov/issues/paid-family-medical-leave.

Gillis, Justin. “Fixing Climate Change May Add No Costs, Report Says.” *The New York Times*, September 16, 2014. http://www.nytimes.com/2014/09/16/science/earth/fixing-climate-change-may-add-no-costs-report-says.html.

Goldin, Claudia Dale, and Lawrence F Katz. *The Race between Education and Technology*. Cambridge, Mass.: Belknap Press of Harvard University Press, 2008.

Goldstein, Steve. “A Majority of Americans Make Less than $20 per Hour.” *MarketWatch*. Accessed November 11, 2015. http://www.marketwatch.com/story/a-majority-of-americans-make-less-than-20-per-hour-2014-11-14.

Gould, William B. “Some Reflections on Fifty Years of the National Labor Relations Act: The Need for Labor Board and Labor Law Reform.” *Stanlawrevi Stanford Law Review* 38, no. 4 (1986): 937–44.

Gramlich, Edward M. “Infrastructure Investment: A Review Essay.” *Journal of Economic Literature* 32, no. 3 (September 1, 1994): 1176–96.

Hacker, Jacob S, and Paul Pierson. *Winner-Take-All Politics: How Washington Made the Rich Richer-and Turned Its Back on the Middle Class*. New York: Simon & Schuster, 2010.

Hadley, Jack, and John Holahan. “The Cost of Care for the Uninsured: What Do We Spend, Who Pays, and What Would Full Coverage Add to Medical Spending.” Kaiser Commission on Medicaid and the Uninsured, May 10, 2004. http://www.kff.org/uninsured/upload/The-Cost-of-Care-for-the-Uninsured-What-Do-We-Spend-Who-Pays-and-What-Would-Full-Coverage-Add-to-Medical-Spending.pdf.

Hall, Keith. “How CBO Will Implement Dynamic Scoring: Presentation at the Heritage Foundation.” Heritage Foundation: Congressional Budget Office, June 17, 2015. https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/presentation/50317-heritageslides.pdf.

Himmelstein DU, and Woolhandler S. “Cost Control in a Parallel Universe: Medicare Spending in the United States and Canada.” *Archives of Internal Medicine* 172, no. 22 (December 10, 2012): 1764–66. doi:10.1001/2013.jamainternmed.272.

“How Much Will Medicaid Physician Fees for Primary Care Rise in 2013? Evidence from a 2012 Survey of Medicaid Physician Fees.” Accessed July 13, 2013. http://kff.org/medicaid/issue-brief/how-much-will-medicaid-physician-fees-for/.

Hoynes, Hilary W., Diane Whitmore Schanzenbach, and Douglas Almond. “Long Run Impacts of Childhood Access to the Safety Net.” Working Paper. National Bureau of Economic Research, November 2012. http://www.nber.org/papers/w18535.

“Immigrants in the United States, 2010: A Profile of America's Foreign-Born Population.” *Center for Immigration Studies*. Accessed January 27, 2013. http://cis.org/2012-profile-of-americas-foreign-born-population.

Internal Revenue Service. “SOI Tax Stats - Historical Table 1.” Washington, D. C.: United States Government, Internal Revenue Service, May 9, 2014. http://www.irs.gov/uac/SOI-Tax-Stats-Historical-Table-1.

Jeon, Yongbok, and Matías Vernengo. “Puzzles, Paradoxes, and Regularities: Cyclical and Structural Productivity in the United States (1950–2005).” *Review of Radical Political Economics* 40, no. 3 (September 1, 2008): 237–43. doi:10.1177/0486613408320002.

Jiwani, Aliya, David Himmelstein, Steffie Woolhandler, and James Kahn. “Billing and Insurance-Related Administrative Costs in United States’ Health Care: Synthesis of Micro-Costing Evidence.” *BMC Health Services Research* 14, no. 556 (2014). http://www.biomedcentral.com/content/pdf/s12913-014-0556-7.pdf.

Kaldor, Nicholas. *Causes of the Slow Rate of Economic Growth of the United Kingdom: An Inaugural Lecture*. London: Cambridge University Press, 1966.

Katznelson, Ira. *Fear Itself: The New Deal and the Origins of Our Time*, 2013.

Keehan, Sean P., Gigi A. Cuckler, Andrea M. Sisko, Andrew J. Madison, Sheila D. Smith, Devin A. Stone, John A. Poisal, Christian J. Wolfe, and Joseph M. Lizonitz. “National Health Expenditure Projections, 2014–24: Spending Growth Faster Than Recent Trends.” *Health Affairs*, July 28, 2015, 10.1377/hlthaff.2015.0600. doi:10.1377/hlthaff.2015.0600.

Kotz, David M. *The Rise and Fall of Neoliberal Capitalism*. Cambridge, Massachusetts ; London, England: Harvard University Press, 2015.

Krugman, Paul. “The Not-So-Bad Economy.” *The New York Times*, December 7, 2015. http://www.nytimes.com/2015/12/07/opinion/the-not-so-bad-economy.html.

Mangum, Garth L. *Three Worlds of Labor Economics*. M.E. Sharpe, 1988.

McKinsey Global Institute. “Accounting for the Cost of Health Care in the United States,” January 2007. http://www.mckinsey.com/mgi/rp/healthcare/accounting_cost_healthcare.asp.

Mulligan, Casey B. *Side Effects and Complications: The Economic Consequences of Health-Care Reform*. Chicago ; London: The University of Chicago Press, 2015.

———. *The Redistribution Recession: How Labor Market Distortions Contracted the Economy*. New York: Oxford University Press, 2012.

National Institute for Health Care Management. “Spending for Private Health Insurance in the United States.” Data Brief. National Institute for Health Care Management, January 2013. http://www.nihcm.org/images/stories/Spending_for_Private_Health_Insurance_Rev.pdf.

Office of Management and Budget. “Analytical Perspectives, Budget of the United States Government, Fiscal Year 2016.” Washington, D. C.: Executive Office of the President, 2015. https://www.whitehouse.gov/omb/budget/Analytical_Perspectives.

Office of the Chief Actuary, Social Security. “Estimate of the Financial Effects on Social Security of S. 1940, the ‘Safeguarding American Families and Expanding Social Security Act of 2015,’ Legislation Introduced on August 5, 2015 by Representative Brian Schatz,” August 24, 2015. https://www.socialsecurity.gov/OACT/solvency/BSchatz_20150824.pdf.

———. “Estimates of the Financial Effects on Social Security of S. 731,” March 26, 2015. https://www.ssa.gov/oact/solvency/BSanders_20150323.pdf.

Oi, Walter Y. “Labor as a Quasi-Fixed Factor.” *Journal of Political Economy* 70, no. 6 (1962): 538–55.

Page, Benjamin I. *Class War?: What Americans Really Think about Economic Inequality*. Chicago: The University of Chicago Press, 2009.

“Pell Grant Programs - Baseline Projections.” *Congressional Budget Office*. Accessed October 2, 2015. https://www.cbo.gov/publication/44199.

Pew Research Center, NW, Suite 800 Washington, and DC 20036 202 419 4300 | Main 202 419 4349 | Fax 202 419 4372 | Media Inquiries. “The American Middle Class Is Losing Ground.” *Pew Research Center’s Social & Demographic Trends Project*. Accessed December 10, 2015. http://www.pewsocialtrends.org/2015/12/09/the-american-middle-class-is-losing-ground/.

Piketty, Thomas. “TOP INCOME SHARES IN THE LONG RUN: AN OVERVIEW.” *JEEA Journal of the European Economic Association* 3, no. 2–3 (2005): 382–92.

Piketty, Thomas, and Arthur Goldhammer. *Capital in the Twenty-First Century*. Cambridge Massachusetts: The Belknap Press of Harvard University Press, 2014.

Pollin, Robert. *A Measure of Fairness: The Economics of Living Wages and Minimum Wages in the United States*. Ithaca: ILR Press, 2008.

"Raising the Overtime Threshold Would Directly Benefit 13.5 Million Workers: Here Is a Breakdown of Who They Are." *Economic Policy Institute*. Accessed November 11, 2015. http://www.epi.org/publication/breakdownovertimebeneficiaries/.

Reich, Robert B. *Beyond Outrage: What Has Gone Wrong with Our Economy and Our Democracy, and How to Fix It*. New York: Vintage Books, 2012.

Reich, Robert B. *Saving Capitalism: For the Many, Not the Few*. First edition. New York: Alfred A. Knopf, 2015.

Riddell, Chris. "Union Certification Success under Voting Versus Card-Check Procedures: Evidence from British Columbia, 1978-1998." *Industrial and Labor Relations Review* 57, no. 493 (2004).

Rosenbaum, Dottie, and Brynne Keith-Jennings. "SNAP Costs Declining, Expected to Fall Much Further. Trend Reflects Recent Benefit Reduction and Lower Caseloads." Washington, D. C.: Center on Budget and Policy Priorities, February 9, 2015. http://www.cbpp.org/research/snap-costs-declining-expected-to-fall-much-further.

Rosenfeld, Jake. *What Unions No Longer Do*. Cambridge, Massachusetts ; London, England: Harvard University Press, 2014.

Sallie Mae Bank, and Ipsos Public Affairs. "How America Pays for College 2015 Sallie Mae's National Study of College Students and Parents." Sallie Mae Bank, 2015. http://news.salliemae.com/files/doc_library/file/HowAmericaPaysforCollege2015FNL.pdf.

Sanders, Bernard. "Bernie Sanders Has a Plan to Pay for His Plans to Rebuild the Middle Class," n.d.

———. "S.731 - 114th Congress (2015-2016): Social Security Expansion Act." Legislation, March 12, 2015. https://www.congress.gov/bill/114th-congress/senate-bill/731.

———. "S.1782 - 113th Congress (2013-2014): American Health Security Act of 2013." Legislation, December 9, 2013. https://www.congress.gov/bill/113th-congress/senate-bill/1782.

Sanders, Bernie. "SENATOR BERNIE SANDERS' PLAN FOR A BROADLY-SHARED PROSPERITY," August 15, 2015.

Schlesinger, Arthur M. *The New Deal in Action, 1933-1939*. Folcroft, Pa: Folcroft Library Editions, 1977.

Shear, Michael D., and Steven Greenhouse. "Obama Will Seek Broad Expansion of Overtime Pay." *The New York Times*, March 11, 2014. http://www.nytimes.com/2014/03/12/us/politics/obama-will-seek-broad-expansion-of-overtime-pay.html.

Sisko, Andrea M., Christopher J. Truffer, Sean P. Keehan, John A. Poisal, M. Kent Clemens, and Andrew J. Madison. "National Health Spending Projections: The Estimated Impact Of Reform Through 2019." *Health Affairs* 29, no. 10 (October 1, 2010): 1933–41. doi:10.1377/hlthaff.2010.0788.

"The 2015 Long-Term Budget Outlook." *Congressional Budget Office*. Accessed September 21, 2015. https://www.cbo.gov/publication/50250.

"The Effects of a Minimum-Wage Increase on Employment and Family Income." *Congressional Budget Office*. Accessed May 22, 2015. https://www.cbo.gov/publication/44995.

Treasury of the United States. "Tax Expenditures FY2015." Washington, D. C.: Executive Office of the President, January 2015. http://www.treasury.gov/resource-center/tax-policy/Documents/Tax-Expenditures-FY2015.pdf.

Tung, Irene, Paul Sonn, and Yannet Lathrop. "The Growing Movement for $15 |." Accessed November 11, 2015. http://nelp.org/publication/growing-movement-15/.

"Unions, Inequality, and Faltering Middle-Class Wages." *Economic Policy Institute*. Accessed November 11, 2015. http://www.epi.org/publication/ib342-unions-inequality-faltering-middle-class/.

US Census Bureau. "Supplemental Measures of Material Well-Being: Basic Needs, Consumer Durables,Energy, and Poverty, 1981 to 2002." Current Population Reports. Washington, D. C.:

United States Census Bureau, December 2005. https://www.census.gov/prod/2005pubs/p23-202.pdf.

USDA. “Supplemental Nutrition Assistance Program (SNAP),” n.d. http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap.

Verdoorn, J. “On the Factors Determining the Growth of Labor Productivity.” *Italian Economic Papers* 2 (1993).

Verdoorn, P. J. “Verdoorn’s Law in Retrospect: A Comment.” *The Economic Journal* 90, no. 358 (1980): 382–85. doi:10.2307/2231798.

Warren, Dorrien. “Union Organizing In National Labor Relations Board Elections.” Roosevelt Institute, October 7, 2015. http://rooseveltinstitute.org/wp-content/uploads/2015/10/Union-Organizing-In-National-Labor-Relations-Board-Elections.pdf.

West, Rachel, Michael Reich | Wednesday, March 5, and 2014. “The Effects of Minimum Wages on SNAP Enrollments and Expenditures.” *Name*. Accessed November 11, 2015. https://www.americanprogress.org/issues/economy/report/2014/03/05/85158/the-effects-of-minimum-wages-on-snap-enrollments-and-expenditures/.

“Why It’s Time to Update Overtime Pay Rules: Frequently Asked Questions.” *Economic Policy Institute*. Accessed November 11, 2015. http://www.epi.org/publication/time-update-overtime-pay-rules-answers-frequently/.

Woolhandler, Steffie, Terry Campbell, and David Himmelstein. “Cost of Health Care Administration in the United States and Canada.” *New England Journal of Medicine*, no. 349 (2003): 768–75.

Woolhandler, Steffie, and David Himmelstein. “Administrative Work Consumes One-Sixth of U.S. Physicians’ Working Hours and Lowers Their Career Satisfaction.” *International Journal of Health Services* 44, no. 4 (January 1, 2014): 635–42. doi:10.2190/HS.44.4.a.