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

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

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

---


\(^2\) 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.\textsuperscript{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.\textsuperscript{7}

\begin{table}[h]
\centering
\begin{tabular}{|l|c|}
\hline
Program & 10 Year fiscal impact  \\
& ($billions) \\
\hline
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 \\
\hline
Total & $15,828 \\
\hline
\end{tabular}
\caption{Revenue enhancements in Sanders program and 10 year impact ($billions)}
\end{table}

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-

\textsuperscript{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.

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.  

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

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

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. 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. 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.\textsuperscript{11}

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
 & Baseline-CBO & Sanders & Change \\
\hline
GDP (nominal) & $28,600 & $43,127 & 51\% \\
GDP (real) & $23,300 & $31,891 & 37\% \\
Per-capita GDP (real) & $64,903 & $86,001 & 33\% \\
\hline
Growth rate of per-capita GDP, 2016-26 & 1.7\% & 4.5\% & 168\% \\
\hline
Median household income & $59,336 & $82,151 & 38\% \\
Output (GDP) per worker & $146,585 & $172,530 & 18\% \\
\hline
Annual productivity growth rate & 1.55\% & 3.18\% & 105\% \\
\hline
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\% \\
\hline
\end{tabular}
\caption{Summary of economic impact of different aspects of Sanders program.}
\end{table}

\textit{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 \textit{and} promote a more just prosperity, “broadly-based” with a narrowing of economic inequality.\textsuperscript{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


\textsuperscript{12} The balance of reform and recovery is familiar to scholars of the New Deal. See, for examples, Brinkley, \textit{The End Of Reform}; Katznelson, \textit{Fear Itself}. 
programs including progressive taxation will dramatically narrow the gap between rich and poor.\textsuperscript{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.\textsuperscript{14}

National income

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Gross Domestic Product under CBO forecast and with Sanders program with CBO price inflation}
\textit{Note: This figure shows the Sanders GDP at CBO prices, without the approximately 1\% higher inflation that will come with the Sanders program.}
\end{figure}

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).

\textsuperscript{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.

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.\textsuperscript{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.\textsuperscript{18} Labor

\textsuperscript{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.

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.  

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. 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).

---

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).

Figure 6. Labor Force Participation Rate: Sanders versus CBO

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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

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

**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.

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. 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. 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).

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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](image)

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.\textsuperscript{30} Additional spending of $1.6 trillion in 2026 is balanced by $2.3 trillion in additional revenue from faster economic growth.\textsuperscript{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](image)

**Conclusion**

Senator Sanders’ program will reverse economic trends that have been building for nearly 40 years.\textsuperscript{32} The stimulus of increased government spending and higher wages will increase effective demand, raising...
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. 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.](image)

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.

---

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. 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 poverty rate and level of inequality (ratio of average income top 5% to bottom 20%)](image)

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.

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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%20Page.htm
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. The impact of the Sanders program is estimated using a series of macroeconomic parameters.

**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. 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. 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.

**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.
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. I assume that reductions in the number of unemployed will account for 16.92% of the average annual increase in employment. 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 R² of 8.93. 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.

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. 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. After estimates of

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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.


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.

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>
<thead>
<tr>
<th>Regulatory program</th>
<th>Share of Increase in Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum wage</td>
<td>25%</td>
</tr>
<tr>
<td>Overtime</td>
<td>50%</td>
</tr>
<tr>
<td>Pay equity</td>
<td>50%</td>
</tr>
<tr>
<td>EFCA</td>
<td>10%</td>
</tr>
</tbody>
</table>

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• 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

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. 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%.
- 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.

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.
• It is assumed that tax expenditures would disappear for 60% of the deductibility of qualified tuition.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{61} The impact of single payer in 2017 is projected using the methodology in Friedman’s study

\textsuperscript{55} Treasury of the United States, “Tax Expenditures FY2015.”
\textsuperscript{57} Note that the program has a dedicated revenue source, a 0.2% increase in the payroll tax paid by employers and employees.
\textsuperscript{60} Data on expenditures and recipients are from USDA, “Supplemental Nutrition Assistance Program (SNAP).”
of HR 676. 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. 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.
- 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.
- Spending offsets for the EITC are calculated from elasticities of EITC spending with respect to income. 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.

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.

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62 “Friedman Analysis of HR 676.”
65 Pollin, *A Measure of Fairness*. Also see “The Effects of a Minimum-Wage Increase on Employment and Family Income.”
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.  
- 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%.  
- 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.  
- 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.

---

**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.\(^2\)

- 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.\(^3\)

### Table 8. Climate change spending programs

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

**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.\(^4\) Revenues are calculated by multiplying the tax base (including the impact of including wage income above $250,000) by 0.4%.

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\(^2\) These assumptions are completely arbitrary.
\(^3\) These are listed in the “American Clean Energy Investment Act,” the “Climate Protection and Justice Act,” and the “Clean Energy Worker Just Transition Act”.
Social Security

- The revenue impact is from the Social Security Administration, Office of the Chief Actuary. 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.

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.

Financing health care

- The revenue from ending tax expenditures on health insurance premiums and other programs is from the US Treasury. 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 for Health Care Management.

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.
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.\textsuperscript{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>
<thead>
<tr>
<th>Table 9. Funding Medicare-for-All program, average annual funding over 2017-26.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Federal Spending</td>
</tr>
<tr>
<td>Reduced tax expenditures</td>
</tr>
<tr>
<td>2.2% income-based premium on households</td>
</tr>
<tr>
<td>Payroll at 6.20% income based health care premium paid by employers</td>
</tr>
<tr>
<td>Responsible Estate Tax Act</td>
</tr>
<tr>
<td>Taxing capital gains as regular income</td>
</tr>
<tr>
<td>Capping high-income tax deductions</td>
</tr>
<tr>
<td>Progressive income tax rates</td>
</tr>
<tr>
<td>Net (surplus)</td>
</tr>
</tbody>
</table>

Financial Transactions Tax
- Revenue estimates are one quarter of projected revenue from Robert Pollin.\textsuperscript{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.\textsuperscript{82}


\textsuperscript{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: \( \% \text{ Change in Wage} = 0.4254 \% \text{ Change in Employment} + 0.0007 \)
\[ R^2 = 0.1963 \]

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:

\[
\text{Change in poverty rate} = 0.005175 + 0.00066 \times (\text{change in real wage}) + 0.264728 \times (\text{change in unemployment rate})
\]

Adjusted \( R^2 = 0.5677 \)

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.


\(^{84}\) 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.

<table>
<thead>
<tr>
<th></th>
<th>CBO</th>
<th>Sanders</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elderly</td>
<td>Disabled</td>
<td>Full-time workers and family</td>
</tr>
<tr>
<td>2016</td>
<td>14.6</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>2017</td>
<td>14.1</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>2018</td>
<td>13.5</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>2019</td>
<td>12.9</td>
<td>1.3</td>
<td>1.2</td>
</tr>
<tr>
<td>2020</td>
<td>12.3</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>2021</td>
<td>12.0</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>2022</td>
<td>11.7</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>2023</td>
<td>11.4</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>2024</td>
<td>11.1</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>2025</td>
<td>10.8</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>2026</td>
<td>10.5</td>
<td>0.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Median household income</th>
<th>CBO baseline</th>
<th>Sanders</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$ 53,657</td>
<td>$ 53,657</td>
</tr>
<tr>
<td>2026, economic growth</td>
<td>$ 59,336</td>
<td>$ 73,380</td>
</tr>
<tr>
<td>2026, with taxes and regulations</td>
<td>$ 59,336</td>
<td>$ 80,032</td>
</tr>
</tbody>
</table>
**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 \((\text{Change in income}) = 0.7694 (\text{Employment growth}) + 0.0039\)

\[ R^2 = 0.1022 \]

For the bottom 20%, the regression is \((\text{Change in income}) = 1.1308 (\text{Employment growth}) - 0.0163\)

\[ R^2 = 0.5478 \]

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.\(^{87}\)

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\(^{85}\) Estimated from income data in Internal Revenue Service, “SOI Tax Stats - Historical Table 1.”

\(^{86}\) Estimated from income data in ibid.

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). 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)

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

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.

---

2. **Reducing provider overhead to the Canadian administrative level.** The Canadian rate is estimated from Himmelstein and Woolhandler.\(^8^9\)

3. **Lowering US drug prices to the average level of other OECD member states.** The world level is estimated from McKinsey Global Institute.\(^9^0\)

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.\(^9^1\)

### Table 13. Projected savings rates for US health care with single payer.\(^9^2\)

<table>
<thead>
<tr>
<th></th>
<th>Savings rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital care</td>
<td>9.4%</td>
</tr>
<tr>
<td>Physicians and clinical services</td>
<td>10.7%</td>
</tr>
<tr>
<td>Other professional services</td>
<td>9.0%</td>
</tr>
<tr>
<td>Dental services</td>
<td>9.0%</td>
</tr>
<tr>
<td>Home health care</td>
<td>19.2%</td>
</tr>
<tr>
<td>Nursing home care</td>
<td>7.0%</td>
</tr>
<tr>
<td>Other personal health care</td>
<td>10.7%</td>
</tr>
<tr>
<td>Savings on pharmaceuticals</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

### 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.\(^9^3\)

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

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\(^9^1\) “Friedman Analysis of HR 676.”

\(^9^2\) Note that this is modified from Table 3 in my 2013 study.

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.  

**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.

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

---


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

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

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.\(^\text{96}\)

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)

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

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. 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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Tax expenditures</th>
<th>Reduced Tax expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insurance</td>
<td>MSA</td>
</tr>
<tr>
<td>2017</td>
<td>$370,650</td>
<td>$6,720</td>
</tr>
<tr>
<td>2018</td>
<td>$385,820</td>
<td>$7,950</td>
</tr>
<tr>
<td>2019</td>
<td>$407,180</td>
<td>$9,440</td>
</tr>
<tr>
<td>2020</td>
<td>$434,070</td>
<td>$11,240</td>
</tr>
<tr>
<td>2021</td>
<td>$461,610</td>
<td>$13,370</td>
</tr>
<tr>
<td>2022</td>
<td>$490,720</td>
<td>$15,900</td>
</tr>
<tr>
<td>2023</td>
<td>$521,910</td>
<td>$18,900</td>
</tr>
<tr>
<td>2024</td>
<td>$554,440</td>
<td>$22,540</td>
</tr>
<tr>
<td>2025</td>
<td>$589,078</td>
<td>$26,881</td>
</tr>
<tr>
<td>2026</td>
<td>$621,045</td>
<td>$28,462</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Federal Spending</td>
<td>$1,377</td>
</tr>
<tr>
<td>Reduced tax expenditures</td>
<td>$309</td>
</tr>
<tr>
<td>2.2% income-based premium on households</td>
<td>$210</td>
</tr>
<tr>
<td>Payroll at 6.20% income based health care premium paid by employers</td>
<td>$630</td>
</tr>
<tr>
<td>Progressive Income Tax Reforms</td>
<td></td>
</tr>
<tr>
<td>Responsible Estate Tax Act</td>
<td>$21</td>
</tr>
<tr>
<td>Taxing capital gains and dividends the same as income from work</td>
<td>$92</td>
</tr>
<tr>
<td>Limit tax deductions of the rich</td>
<td>$15</td>
</tr>
<tr>
<td>Progressive income tax rates</td>
<td>$110</td>
</tr>
<tr>
<td>Net (surplus)</td>
<td>$(10)</td>
</tr>
</tbody>
</table>
Appendix V: Additional tables
<table>
<thead>
<tr>
<th>Year</th>
<th>Infrastructure</th>
<th>Climate</th>
<th>Private Pension Funds</th>
<th>College</th>
<th>Paid leave</th>
<th>Health Care</th>
<th>Social Security</th>
<th>Youth jobs</th>
<th>Bonus</th>
<th>CPI-E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$100</td>
<td>$92</td>
<td>$10</td>
<td>$64</td>
<td>$27</td>
<td>$1,286</td>
<td>$6</td>
<td>$2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>$150</td>
<td>$100</td>
<td>$10</td>
<td>$66</td>
<td>$28</td>
<td>$1,321</td>
<td>$13</td>
<td>$2.1</td>
<td>$2.75</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>$200</td>
<td>$107</td>
<td>$9</td>
<td>$69</td>
<td>$29</td>
<td>$1,341</td>
<td>$22</td>
<td>$2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>$250</td>
<td>$115</td>
<td>$12</td>
<td>$71</td>
<td>$30</td>
<td>$1,358</td>
<td>$30</td>
<td>$2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021</td>
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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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Minimum wage</th>
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<th>Overtime</th>
<th>Paycheck equity: gender fairness</th>
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<td>Share of CBO GDP</td>
<td>Stimulus</td>
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<td>Financial Transactions tax</td>
<td>Family leave</td>
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Table 22. Estimated value of multiplier on government spending.
References


