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AN ANALYSIS OF SENATOR BERNIE SANDERS'S TAX PROPOSALS

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ABSTRACT

Presidential candidate Bernie Sanders proposes significant increases in federal income, payroll, business, and estate taxes, and new excise taxes on financial transactions and carbon. New revenues would pay for universal health care, education, family leave, rebuilding the nation's infrastructure, and more. TPC estimates the tax proposals would raise $15.3 trillion over the next decade. All income groups would pay some additional tax, but most would come from high-income households, particularly those with the very highest income. His proposals would raise taxes on work, saving, and investment, in some cases to rates well beyond recent historical experience in the US.

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SUMMARY AND INTRODUCTION

Presidential candidate Bernie Sanders has proposed significant increases in federal income, payroll, business, and estate taxes, as well as two large new excise taxes. He would use the additional revenue to pay for sweeping new government programs, including a federally administered, single-payer health care program; paid family and medical leave; free tuition at public universities and colleges; investment in rebuilding the country's infrastructure; and more.

The Tax Policy Center (TPC) estimates that the Sanders tax proposals would increase federal revenue by $15.3 trillion over their first decade (6.4 percent of cumulative gross domestic product [GDP] over that period) and by an additional $25.1 trillion over the subsequent 10 years (7.0 percent of cumulative GDP), before accounting for any changes in the cost of federal borrowing or macroeconomic feedback effects.[1] Approximately two-fifths of the estimated revenue increase would come from a new employer payroll tax on all earnings and an across-the-board increase in income taxes, which would pay for a new, government-administered, health insurance program. Net increases in individual income, payroll, and estate taxes paid by high-income and high-wealth taxpayers would account for another quarter of the increase, as would the elimination of tax breaks for health care–related expenditures. Higher taxes paid by businesses, a new tax on financial transactions, and a new tax on carbon would account for the remainder.

The proposal would raise taxes at every income level, but high-income taxpayers would face the biggest increases, both in dollar amount and as a percentage of income. Overall, the plan would raise tax burdens by an average of nearly $9,000, thereby lowering average after-tax income by 12.4 percent. However, the highest-income taxpayers (the top 0.1 percent, or those with income over $3.7 million in 2015 dollars) would experience an average increase in tax burdens of more than $3 million in 2017, nearly 45 percent of their $6.9 million average after-tax income. Households in the middle quintile of the income distribution would see an average tax increase of almost $4,700, or 8.5 percent of their average after-tax income. Those in the bottom quintile would experience smaller tax increases, averaging $165, or 1.3 percent of their average after-tax income.

The increases in marginal tax rates under the plan would reduce incentives to work, save, and invest. The proposals would also raise the marginal effective tax rate (METR) on all new investments, thus significantly reducing incentives to invest and increasing tax distortions in the allocation of capital. Although the significant additional revenues would by themselves reduce government borrowing and lower interest rates, it is clear that Senator Sanders intends to use those revenues to expand government programs. If the revenues are insufficient to cover the new spending, the additional borrowing could increase interest rates, which would further raise investment costs. However, the additional spending could generate its own positive economic

benefits to the extent that it would increase the nation's investment in productive physical and human capital.

The main elements of the Sanders proposals, as we modeled them, are provided in the following list. In response to our questions, the Sanders campaign provided clarifications on a number of proposals. Appendix A shows our questions concerning certain proposals and the assumptions we made in our modeling, which were based on the campaign's responses. Note that our estimates include the effects of the Protecting Americans from Tax Hikes Act of 2015 and the tax provisions in the Consolidated Appropriations Act of 2016 on both current law baseline revenues and the Sanders plan.

Individual Income Tax

- Cap regular income tax rates at 28 percent of taxable income, but create graduated surtaxes based on adjusted gross income (AGI) for higher-income households.
  - Retain the bottom four income tax brackets up to the 28 percent bracket, which would become the highest regular income tax bracket.
  - Add a surtax based on AGI at graduated rates for high-income households. The surtax would apply to taxpayers with AGI over $200,000 ($250,000 for married couples filing jointly and $125,000 for couples filing separately). Surtaxes would be the following:
    - 9 percent on income between $200,000 ($250,000 for couples)[2] and $500,000 (creating a marginal income tax rate of 37 percent for taxpayers in the 28 percent bracket),
    - 15 percent on income between $500,000 and $2 million (43 percent marginal rate),
    - 20 percent on income between $2 million and $10 million (48 percent marginal rate), and
    - 24 percent on income above $10 million (52 percent marginal rate).
- Enact a new 2.2 percent surtax on all taxable income (in addition to the tax and surtax described earlier).
- Repeal the individual alternative minimum tax (AMT), the personal exemption phaseout (PEP), and the limitation on itemized deductions (the "Pease" limitation).
- Tax capital gains and dividends at the proposed tax rates (including surtaxes) for ordinary income for taxpayers with incomes above the end of the current 28 percent bracket, but retain current reduced rates for long-term gains and qualified dividends for taxpayers with income at or below the current 28 percent bracket threshold.
- Modify the rules for like-kind exchanges of appreciated property to broaden the categories of transactions that are treated as taxable realizations of capital gains.
- Require that derivatives be marked to market each year and that the resulting gains or losses be taxed as ordinary income.

- Tax capital gains on gifts and bequests of appreciated property with a lifetime exclusion for the first $250,000 of gains. The exclusion would be reduced dollar for dollar by the income of the donor or decedent.
- Repeal the exclusion from income and payroll taxes of health-related expenditures, including employer contributions for health insurance, the above-the-line deduction for health insurance premiums paid by self-employed individuals, the deduction for contributions to medical savings accounts (MSAs) or health savings accounts (HSAs), and the itemized deduction for medical expenses.
- Tax carried interest as employment income.

Payroll Taxes

- Enact a new 6.2 percent payroll tax paid by employers on the same tax base as the current Medicare hospital insurance (HI) payroll tax.
- Extend the Social Security payroll tax (combined employee and employer rate of 12.4 percent) to earnings over $250,000.
- Enact a new 0.2 percent payroll tax paid by both employees and employers on the same tax base as the current Social Security payroll tax.

Estate and Gift Taxes

- Restore the 2009 exemption levels for the estate tax of $3.5 million (with an effective exemption of $7 million for the estate of a married couple). The exemption levels would not be indexed for inflation.
- Replace the current 40 percent tax rate with the following rate structure:
  - 45 percent for the value of an estate between $3.5 million (or $7 million for couples) and $10 million,
  - 50 percent of the value of an estate between $10 million and $50 million, and
  - 55 percent of the value of an estate in excess of $50 million.
- Impose a new additional 10 percent surtax on estates valued in excess of $500 million ($1 billion for couples).
- Sharply limit the annual exclusion from the gift tax.

Business Taxes

- End deferral of the current US tax on the earnings of controlled foreign subsidiaries.
- For tax purposes, treat foreign companies that are managed and controlled in the United States as US corporations.
- Restrict inversions by US corporations.
- Impose a per country limitation on the foreign tax credit.
- Limit the deduction of interest expense of a US corporation that is a member of a financial reporting group.

- Eliminate tax breaks for oil, gas, and coal companies.
- Limit or deny the foreign tax credit to large, integrated oil companies that are dual-capacity taxpayers.
- Eliminate some business tax preferences.

Excise Taxes

- Enact a new financial transaction tax (FTT) with rates of 0.500 percent on stock trades, 0.100 percent on bonds, and 0.005 percent on derivatives.
- Provide a tax credit to individuals making under $50,000 and to couples making under $75,000 for the FTT to the extent that investment houses pass the tax along to investors.
- Enact a new tax on "carbon polluting substances," starting at $15 per ton of carbon dioxide or of carbon dioxide–equivalent content, phasing up to $73 per ton in 2035 and then rising by 5 percent plus the inflation rate in subsequent years.
- Rebate the revenues collected from the carbon tax on a per capita basis, but phase out the rebate for individuals with AGI over $100,000.

Affordable Care Act Taxes

- Increase the surtax on net investment income enacted as part of the Affordable Care Act (ACA) by 6.2 percentage points (from 3.8 percent to 10.0 percent).
- Repeal excises and penalties included in the ACA that become obsolete because of other tax and health reform proposals, such as the "Cadillac tax" on high-premium employer plans, the penalties from the employer and employee mandates, and the excise on health insurers.

MAJOR ELEMENTS OF THE PROPOSAL

Senator Sanders has proposed ambitious plans (1) to expand social insurance programs (Medicare for All, Strengthen and Expand Social Security, Keep Our Pension Promises, and Paid Family and Medical Leave); (2) to increase government investment in physical and human capital (Creating Jobs Rebuilding America, College for All, and Youth Job Programs); and (3) to address climate change (Combating Climate Change to Save the Planet). He would pay for those and other programs through a combination of tax increases for individuals and businesses.

Individual Income Tax

The proposed changes to the individual income tax would help pay for a federally administered, single-payer health care program ("Medicare for All"). The Sanders plan, which would take effect in 2017, starts with the current system's four lowest tax rates and income tax brackets unchanged, and a reduction in the tax rates in the upper tax brackets to 28 percent. All of these rates are then increased by a new 2.2 percent tax on all taxable income. The plan would then

impose a new graduated tax on AGI that would increase marginal tax rates for taxpayers in the upper brackets (table 1).

TABLE 1

Income Tax Rates Under Current Law and under Sanders Tax Plan
2017

Single filers		Married filing jointly filers		Current law tax rate		Sanders tax rate		
Over	But not over	Over	But not over	Ordinary income	Capital gains and dividends	Ordinary income	Capital gains and dividends	Surtax on Taxable iIncome
Taxable Income								
0	9,500	0	19,000	10	0	10	0	2.2
9,500	38,600	19,000	77,200	15	0	15	0	2.2
38,600	93,550	77,200	155,850	25	15	25	15	2.2
93,550	195,100	155,850	237,500	28	15	28	15	2.2
195,100	424,150	237,500	424,150	33	15	28	28	2.2
424,150	425,850	424,150	479,100	35	15	28	28	2.2
425,850	and over	479,100	and over	39.6	20	28	28	2.2
Adjusted Gross Income (additional tax)								
0	200,000	0	250,000	0	0	0	0	--
200,000	500,000	250,000	500,000	0	0	9	9	--
500,000	2,000,000	500,000	2,000,000	0	0	15	15	--
2,000,000	10,000,000	2,000,000	10,000,000	0	0	20	20	--
10,000,000	and over	10,000,000	and over	0	0	24	24	--

Source: Urban-Brookings Tax Policy Center based on the Sanders tax plan and Internal Revenue Service tax brackets projected to 2017.

The actual combined tax rates depend on both taxable income and AGI. Table 2 shows marginal tax rates at different levels of AGI in the simple case of filers that claim the standard deduction and personal exemptions, but no other deductions or credits, for two cases: a single filer and a married couple with no dependents. The maximum total income tax rate, including the AGI tax, would be 54.2 percent at AGI over $10 million.

TABLE 2

Income Tax Rates Under Current Law and under Sanders Tax Plan 2017

Single filers		Married couples filing jointly and claiming 2 personal exemptions		Current law tax rate		Sanders tax rate	
Over	But not over	Over	But not over	Ordinary income	Capital gains and dividends	Ordinary income	Capital gains and dividends
Adjusted gross income							
0	10,650	0	21,300	0	0	0	0
10,650	20,150	21,300	40,300	10	0	12.2	2.2
20,150	49,250	40,300	98,500	15	0	17.2	2.2
49,250	104,200	98,500	177,150	25	15	27.2	17.2
104,200	200,000	177,150	250,000	28	15	30.2	17.2
200,000	205,750	250,000	258,800	28	15	39.2	36.2
205,750	434,800	258,800	445,450	33	15	39.2	39.2
434,800	436,500	445,450	500,000	35	15	39.2	39.2
----------	----------	500,000	500,400	35	15	45.2	45.2
436,500	500,000	----------	----------	39.6	20	39.2	39.2
500,000	2,000,000	500,400	2,000,000	39.6	20	45.2	45.2
2,000,000	10,000,000	2,000,000	10,000,000	39.6	20	50.2	50.2
10,000,000	and over	10,000,000	and over	39.6	20	54.2	54.2

Source: Urban-Brookings Tax Policy Center based on the Sanders tax plan and Internal Revenue Service tax brackets projected to 2017.
Note: Rates are for hypothetical taxpayers who claim the standard deduction and no tax credits. Rates include taxes on taxable income including the new 2.2 percent surtax and the new surtaxes on AGI. They do not include the tax on net investment income for high-income taxpayers.
a The lowest tax bracket covers the standard deduction plus personal exemptions: $6,500 + $4,150 for single filers and $13,000 + $8,300 for married couples filing jointly amd claiming two exemptions. It does not include the additional standard deduction for elderly or blind people.

The last time the maximum marginal income tax rate was approximately this high was during the Reagan administration. The Economic Recovery and Tax Act of 1981 reduced the top rate from 70 percent in 1981 to 50 percent in 1982. The marginal income tax rate remained at that level through 1986, when the Tax Reform Act of 1986 phased it down to 28 percent by 1988. The 50 percent tax rate in 1986, however, applied to taxable incomes over $175,250 for married couples ($88,270 for singles), the equivalent of approximately $380,000 in today's dollars.

Because the maximum rate on taxable income would be capped at 30.2 percent (28 percent plus 2.2 percent surtax), with the additional tax applying to AGI, the tax savings from personal exemptions and itemized deductions would be capped at 30.2 cents per dollar claimed. Currently, taxpayers in the 39.6 percent tax bracket who claim an additional deduction of $1,000 save $396 in taxes, whereas taxpayers in the 15 percent tax bracket claiming the same $1,000 deduction save only $150. Capping the value of exemptions and deductions at 30.2 percent would reduce the disparity, though some would remain. The cap on the value of exemptions and deductions would replace the individual AMT, the PEP, and the Pease limitation, all of which the

proposal would repeal. The proposal would also not allow taxpayers to carry forward unused AMT credits.

Limiting the tax benefit of deductions to 30.2 percent of amounts deducted would reduce tax incentives for higher-income taxpayers to give to charities and to acquire large mortgages. As noted later, changes in the income tax treatment of capital gains in gifts and bequests of appreciated property would further reduce the incentive for wealthy individuals to make charitable gifts.

The cap would also reduce the value of the state and local tax deduction, raising the after-tax cost of state and local taxes for high-income taxpayers. This change would likely put pressure on state and local governments to reduce such taxes and either to seek alternative means for raising revenues or to cut public spending. However, a tax subsidy of 30.2 percent would be an increase for high-income taxpayers who are currently subject to the AMT, which disallows deductions for state and local taxes. Taken together, it is unlikely that capping the deduction and eliminating the AMT would have much of an effect on state and local governments.

Capital Gains and Dividends

The Sanders proposals would dramatically increase taxes on capital gains, dividends, and other investment income of high-income households. Current income tax rates on long-term capital gains and qualified dividends range from zero for taxpayers in the two lowest income tax brackets to 20 percent for taxpayers in the highest bracket. Net investment income is subject to an additional 3.8 percent surtax if a taxpayer's income exceeds $200,000 ($250,000 for married couples). The Sanders proposal would tax all capital gains and dividends at the same rate as ordinary income for taxpayers whose taxable income exceeds the end of the current 28 percent brackets.[3] Taxpayers with income below that threshold would pay the same tax rate on capital gains and dividends as they do under current law. The proposal would also raise the net investment income surtax to 10 percent.

With those changes, the current top marginal tax rate on long-term gains and dividends of 23.8 percent would more than double to 64.2 percent (including the higher surtax on net investment income).[4] That rate on gains is well beyond any in recent US history; the top tax rate on long-term gains peaked at just below 40 percent between 1976 and 1978.[5] A tax rate of 64 percent would be well beyond current estimates of the rate that maximizes revenues, and without other changes it might even lead to lost revenues as taxpayers aggressively try to avoid the tax. Avoiding such a tax is more easily done with capital gains than with other forms of income because taxpayers can choose when to sell assets and to realize gains. However, the Sanders proposal contains other provisions related to capital gains that would limit opportunities to avoid the tax.

Under current law, a large proportion of capital gains escapes income tax through bequests. Bequeathed assets receive a "step-up in basis." Suppose a person bought stock for $100,000 that was worth $1 million at the time of the stockholder's death. If the stockholder had sold the stock while living, that person would have realized a capital gain of $900,000 and would have been liable for income taxes on that amount. If the stockholder instead leaves the asset to an heir, the basis (cost) of the asset is reset to its value at the time of inheritance—in this case $1 million. Thus, if the heir were to sell the asset before it further appreciated, he or she would owe no income tax on the sale.

Taxpayers can also avoid paying tax on their gains by donating appreciated assets to charitable causes. A donor may claim a charitable deduction for the full value of the asset even though he or she is not required to pay income tax on the accrued gains.

Through a number of provisions, the Sanders proposal aims to prevent those and other avenues for avoiding taxes on capital gains. The plan would make capital gains in a bequest or gift of appreciated property taxable to the decedent or donor at the time of transfer. The first $250,000 of gains would be excluded, but the exclusion would be reduced dollar for dollar by the amount of the decedent's or donor's income. Thus, a donor or a decedent with $100,000 of income would receive only a $150,000 exclusion, and someone with $250,000 of income would receive no exclusion.

The plan also would limit the amount of capital gains that could be deferred when a business or investment property is exchanged for a like-kind property, and it would require that gains from a derivative contract be marked-to-market at the end of each year, with the resulting gain or loss treated as ordinary income.

Although those provisions would limit some of the ways in which taxpayers could avoid paying tax on capital gains, a strong incentive to delay realizations would still exist for taxpayers. Such delays could increase "lock-in" as investors hold on to their current assets to avoid paying taxes rather than shift those investments to more productive uses. However, because it would no longer be possible to avoid capital gains taxes entirely by holding assets until death, the proposal would have ambiguous effects on average holding periods, especially at low interest rates when the gain from deferral of tax is relatively modest.

Certain types of shifting intended to avoid the higher tax rates would be difficult to prevent. Investors who believe that the new higher tax rates might become law would have a strong incentive to realize gains before the law's effective date. This behavior was witnessed in 1986, when investors realized nearly twice as much in capital gains as they did the year before in anticipation of the higher rates scheduled to take effect in 1987 (Burman, Clausing, and O'Hare 1994). And that activity was in response to a much smaller increase in the top tax rate on gains—from 20 to 28 percent.

The overall effect of much higher tax rates on capital gains and dividends on savings and investments is discussed in the next section.

Health Care–Related Tax Expenditures

As part of his proposal for a new, federally administered, single-payer health insurance program, Senator Sanders would end current tax expenditures for health care–related spending. Those expenditures include the exclusion for employer-paid health insurance premiums, contributions to cafeteria plans, and MSAs and retirement savings accounts, as well as the itemized deduction for health care and the deduction for health insurance expenses of the self-employed. Although much of those expenditures would disappear in a single-payer program, retaining such exclusions would leave an incentive for employers and employees to establish add-on health insurance coverage ("Medigap" plans) to take advantage of the tax savings.

Other Provisions

In addition to the provisions just discussed, Senator Sanders proposes revising the tax treatment of carried interest to pay for a new youth jobs program. Carried interest, or income flowing to the general partner of a private investment fund, is generally treated as capital gains and is taxed at a top rate of 23.8 percent (20.0 percent tax on net capital gains plus 3.8 percent investment tax). Many commentators argue that carried interest is much like compensation in return for the performances of services and as such should be taxed the same as wage and salary income, which is subject to a top rate of 43.4 percent (39.6 percent income tax rate plus a 3.8 percent Medicare payroll tax).

Sanders's proposal would tax a partner's income from an "investment services partnership interest" as ordinary income. The income would also be subject to self-employment income tax. This provision is the same as the Obama administration's fiscal year (FY) 2017 budget proposal to tax carried (profits) interest as ordinary income.

Estate and Gift Taxes

Senator Sanders proposes increasing the federal estate, gift, and generation-skipping transfer taxes and using the additional revenues to help finance the new health insurance program. He would restore the 2009 exemption level of $3.5 million, which would not be indexed for inflation. Transfers between couples would remain exempt, and spouses could still inherit any unused portion of the exemption (as under current law), so the effective exemption for a married couple would be $7 million. The current exemption in 2016 is $5.45 million (with an effective exemption of $10.90 million for couples) and is indexed for inflation.

A new rate structure would replace the current 40 percent tax rate with (1) a 45 percent tax rate on the value of an estate between $3.5 million ($7 million for couples) and $10 million,

(2) a 50 percent rate on the value of an estate between $10 million and $50 million, and (3) a top tax rate of 55 percent on the value of an estate in excess of $50 million. A 10 percent surtax would apply to estates valued at $500 million or more ($1 billion or more for married couples). The proposal would retain current estate tax deductions, including the deduction for charitable contributions.

Approximately 10,500 estates would be affected by the change in 2017, including approximately 5,000 estates that would not have been taxed under the current projected exemption of $5.6 million ($11.2 million for married couples).

Payroll Taxes

Senator Sanders proposes a new 6.2 percent payroll tax paid by employers to help finance his Medicare for All program. The tax would apply to all earnings—the same tax base as the current Medicare HI tax.

He also proposes a new 0.2 percent payroll tax paid by both employers and employees on wages up to the Social Security taxable maximum ($118,500 in 2016 and indexed to growth in average earnings) to finance a new, paid-family-leave program.

In addition, Sanders would apply the current 12.4 percent Social Security payroll tax—half of which is paid by employers and half of which is paid by employees—to earnings over $250,000 to pay for expanding and extending Social Security benefits.

Theory and evidence suggest that payroll taxes, whether paid directly by workers or by their employers, reduce workers' after-tax compensation. Employers would eventually pass on most or all of the costs of the new employer payroll taxes to their workers in the form of lower wages. The effects of the lower wages on workers' labor supply decisions are discussed later.

Such changes would substantially increase effective marginal payroll tax rates, especially for high-earners. Currently, workers earning more than the Social Security taxable maximum bear the burden of the full 2.9 percent Medicare HI tax, of which half is paid by employers and half by employees, on all earnings. Furthermore, they directly pay an additional 0.9 percent Medicare surtax on earnings over $200,000 ($250,000 for married couples). This 3.8 percent combined payroll tax rate for the highest-earners would jump to 22.4 percent as a result of the new 6.2 percent employer payroll tax for health care and the addition of the combined Social Security tax of 12.4 percent.

Those additional taxes would also convey new benefits, however. If the proposal to create a new, federally administered, single-payer health insurance program were successful, then employers would no longer need to provide private health insurance plans for their workers. To the extent that employers' costs for those plans currently exceed 6.2 percent of payroll, employer costs would go down, and—as with the pass-through of payroll taxes—the net savings

would eventually pass through to workers as higher wages. At the same time, workers whose employers now contribute less than 6.2 percent of payroll to health insurance plans would likely see their wages go down as employers incur higher net compensation costs.[6] Similarly, wages could rise for workers whose employers replace their current paid-family-leave programs with the new federal program.

The additional Social Security contributions by high earners would increase future Social Security benefits for those workers, but the present value of the increase in future retirement and disability benefits would be much less than the present value of the tax increase.

Business Taxes

Senator Sanders proposes a number of measures to change the tax treatment of foreign profits earned by US multinational corporations. Such measures include (1) ending deferral of federal income taxes on profits of foreign subsidiaries, (2) imposing a per country limit on foreign tax credits to end cross-crediting, (3) limiting corporate inversions, and (4) preventing earnings stripping.

Deferral

Under current law, the United States taxes resident multinational firms on their worldwide income at the same rates applied to domestic firms. The current 35 percent maximum federal tax rate applies to most corporate income. US multinationals may claim a credit for taxes paid to foreign governments on income earned abroad, but only up to the amount of their US tax liability on that income. Firms may, however, take advantage of cross-crediting by using excess credits from income earned in high-tax countries to offset US taxes due on income earned in low-tax countries.

US multinationals generally pay tax on the income of their foreign subsidiaries only when they repatriate the income, a delay of taxation termed "deferral." Both deferral and the ability to use cross-crediting to extend foreign tax credits to income earned in low-tax countries provide strong incentives for firms to invest in low-tax countries—and even greater incentives to shift reported profits from the United States and other high-tax countries to low-tax countries.

Eliminating the deferral of US tax liability on the unrepatriated income of foreign subsidiaries of US multinationals and imposing a per country limitation on the use of foreign tax credits would increase revenue and substantially eliminate firms' incentives to earn income in (or to shift profits to) low-tax countries. However, eliminating deferral could put US-based multinationals at a competitive disadvantage by raising the tax rate they pay on income earned in low-tax countries compared with taxes paid by foreign-based multinationals. And that in turn would create greater incentives for US firms to change their tax residence through mergers with foreign-based firms.

Corporate Inversions

The United States taxes its multinational corporations different from the way most other countries tax their multinational firms. The US taxes multinationals on dividends they receive from their foreign affiliates, whereas major trading partners of the United States have so-called territorial systems that exempt those dividends.

The United States bases its definition of corporate residence on place of incorporation. This definition need not be consistent with where a company's production is located, where its sales take place, where its shareholders reside, or even where its top managers live.

The benefits of foreign residence, combined with the lack of economic substance in the definition of corporate residence, have led some US-based multinationals to shift the formal incorporation of their parent companies overseas. This type of transaction, called an "inversion," can often be accomplished without changing the real location of most business activities.

Over the years, Congress has enacted rules to limit inversions. However, a company can still "re-domicile" by merging with a foreign-based company under certain conditions, including fulfilling a requirement that the original foreign company contribute at least 20 percent of the shares of the newly merged company if other conditions are not met. Senator Sanders proposes to increase that requirement to 50 percent.

In addition, Senator Sanders would raise the cost of inversions by requiring that companies with central management in the United States be taxed as US resident corporations. This change means that inversions could not be accomplished simply by changing the place where a corporation is chartered, but instead it would require relocation of top management personnel.

Earnings Stripping

Another proposal attempts to prevent "earnings stripping" through which the US affiliate of a multinational company makes interest rather than dividend payments to a parent company (located in a tax haven). The interest is deductible against the US firm's earnings and becomes taxable income for the foreign corporation. Thus, the US firm "strips" earnings from its US taxable income and sends it to the parent firm, which is located in a country with a much lower or even zero tax rate. Senator Sanders's plan would limit a company's US interest deductions if the company's net interest expenses for US tax purposes exceed its net interest expenses on consolidated financial statements.

All of the aforementioned proposals would discourage US multinationals from shifting their residence to foreign jurisdictions. In addition, the proposal to change the definition of corporate residence would require firms that give up their US residence to shift the location of

their central management personnel, not simply to alter their ownership structure. Such a requirement would reduce inversions, but it would also raise the economic costs of inversions that continued to occur, especially if shifts in the location of companies' senior management were to be accompanied by the movement overseas of other company activities, such as research and development.

Pass-Through Businesses

Senator Sanders's proposal to increase individual income tax rates would increase taxes for pass-through businesses. Pass-through businesses include sole proprietorships, partnerships, and S corporations, and they account for over one-third of total business receipts.

Unlike C corporations, pass-through businesses are not subject to corporate income tax. C corporation profits are first subject to corporate income tax (at rates up to 35 percent), and they are taxed again when paid out as dividends to shareholders or when shareholders realize capital gains from retained earnings (at rates up to 23.8 percent under current law). In contrast, the net income of pass-through businesses is taxed only once, at the owner's individual tax rate for ordinary income, up to the maximum rate of 39.6 percent under current law. Depending upon the type of pass-through business, the income may also be subject to payroll taxes.

A significant portion of the income received by high-income taxpayers comes from their participation in pass-through businesses. Sanders's proposed increases in individual income tax rates would raise taxes for those businesses, but the higher rates—along with taxing capital gains and dividends at the same rate as other income—would also significantly increase the tax on corporate distributions. We consider the relative effects of the higher tax rates on the investment incentives for C corporations and pass-through business later.

Other Provisions

Sanders would repeal various tax provisions related to fossil fuels, including expensing of intangible drilling costs, percentage depletion, and the deduction for domestic production for fossil fuel-related activities.

Excise Taxes

Senator Sanders proposes new excise taxes on financial transactions and on carbon. In addition, certain excise taxes enacted in the ACA, such as the penalties from employer and employee mandates and the "Cadillac tax" on high-premium employer health insurance plans, would either be repealed or become obsolete under his proposed Medicare for All program.

Financial Transaction Tax

Senator Sanders proposes a tax on financial transactions, the revenues from which would be used to make public colleges and universities tuition free and to reduce student loan debt ("College for All"). The proposal would tax stock sales at 0.500 percent, bond sales at 0.100 percent, and derivative contracts at 0.005 percent.[7] The tax would not apply to tax-exempt municipal bonds and short-term debt (maturity less than 60 days).

Supporters of an FTT argue that such a tax would curb speculative short-term and high-frequency trading, both of which are activities of little or no social value, and that it could also reduce the price volatility of assets as well as asset bubbles. However, an FTT at the rates being proposed by Senator Sanders would discourage all trading, not just speculation and rent seeking. An FTT appears as likely to increase market volatility as to curb it, as it would create new distortions among asset classes and across industries.

Nevertheless, most feasible taxes are distortionary. It might well be that the marginal cost of raising revenue through a well-designed FTT is lower than the cost of raising revenue through increases in individual or corporate income taxes—especially at the rates that would prevail under Senator Sanders's plan. However, the 0.50 percent tax rate on stock sales in the Sanders proposal is likely to be inefficiently high. Burman et al. (2016b) estimated that the revenue-maximizing tax rate for a proposal somewhat different from the Sanders plan would be about 0.34 percent, and revenues would only fall by 13 percent if the rate were cut from 0.50 to 0.10 percent.

Carbon Tax

Senator Sanders proposes a tax on "carbon polluting substances" starting at $15 per ton of carbon dioxide or of carbon dioxide–equivalent content in 2017, phasing up to $73 per ton in 2035, and then rising by 5 percent plus the inflation rate in subsequent years (table 3.) Carbon-polluting substances would include coal, petroleum and petroleum products, and natural gas, all of which emit greenhouse gases when burned. The tax would fall most heavily on coal, which has the highest carbon content among fossil fuels, and it would apply to carbon-polluting substances mined, manufactured, or produced in or imported into the United States.

TABLE 3

Carbon Tax Rate, by Year

Dollars per Metric Ton Carbon Dioxide Equivalent

Year	Excise Tax Rate
2017	$15
2018	$17
2019	$19
2020	$21
2021	$24
2022	$27
2023	$30
2024	$33
2025	$36
2026	$39
2027	$41
2028	$44
2029	$47
2030	$50
2031	$54
2032	$58
2033	$63
2034	$68
2035	$73
2036 and after	Grows at 5% plus CPI

Receipts from the carbon tax would be distributed quarterly as a per capita rebate from a newly established carbon fee rebate fund administered by the US Department of the Treasury. The rebate would phase out for taxpayers with AGI over $100,000 in the most recent taxable year.

TPC estimates that the carbon tax proposed by Senator Sanders would raise net federal revenues by approximately $900 billion over 10 years. The net revenue increase would be less than the gross revenues generated by the tax because the tax would reduce revenues from other federal taxes, as discussed later. Gross revenues from the tax would be distributed as per capita rebates, but because taxpayers with income over $100,000 would receive a reduced rebate or no rebate at all, the total cost of the rebates would amount to approximately $900 billion over 10 years. Thus, the net budgetary impact of the carbon tax less rebates, before accounting for the effects of the tax on the economy, would be close to zero.

TPC shows the net effect of the tax and rebate program in its revenue and distribution tables, rather than isolating the revenue portion. The Treasury Department would distribute the rebate specified in Senator Sanders's carbon tax legislation, titled the Climate Protection and Justice Act, in quarterly installments. As a result, it would likely be scored as a spending increase, rather than a tax reduction, under official budget scoring conventions. However, except for the quarterly disbursement, the rebate would very much resemble a tax credit. Because Sanders clearly intended to pair the tax and rebate, TPC analyzed the rebate as if it were a credit. However, TPC also shows in appendix E how the distribution of tax burdens would differ if only the carbon tax were considered (without the rebate).

A strong economic case exists for a carbon tax (Marron, Toder, and Austin 2015). Energy prices do not currently reflect the environmental cost of carbon dioxide emissions. Those who benefit from burning fossil fuels generally do not pay for the environmental damage that such emissions cause. Instead, this cost is borne by the world population as a whole, including future generations. Imposing a carbon tax would correct this "externality," or cost-benefit mismatch, by raising the price of energy consumption to reflect its full social cost.

By trapping heat in the atmosphere, greenhouse gas emissions warm the globe, raise sea levels, shift rainfall patterns, boost storm intensity, and increase the risk of sudden climate change.[8] Greenhouse gas emissions thus create a host of potential economic and environmental threats, including increased property damage from storms, human health risks, reduced agricultural productivity, and ecosystem deterioration. Carbon dioxide is the most prevalent greenhouse gas, accounting for more than 80 percent of US emissions. Most carbon dioxide emissions come from burning coal, oil, and natural gas.

A carbon tax would put a price on those emissions. A tax would encourage producers and consumers to reduce emissions in the most efficient and low-cost ways and would create incentives for entrepreneurs to develop new, emission-reducing technologies.

A carbon tax could raise a substantial amount of revenue, but some of those new revenues would automatically be offset by lower receipts from income and payroll taxes. Under the standard assumption used in estimating the budgetary effect of revenue (and spending) proposals that the overall price level is unaffected by the proposal, a carbon tax (or any other excise tax) would reduce the amount that businesses have available—after paying the tax—to pay wages or add to profits. As a result of lower wages and profits, revenues from personal income, corporate income, and payroll taxes would decline. This "offset" at the income and payroll tax rates proposed by Sanders is about 30 percent of the new carbon tax receipts.

IMPACT ON REVENUE, DISTRIBUTION, AND COMPLEXITY

Effects on Revenue

TPC estimates that Senator Sanders's proposals would increase federal receipts by $15.3 trillion between 2016 and 2026, or approximately 6.4 percent of GDP over that period (table 4).[9] Gross receipts would increase by $16.2 trillion over 10 years (before accounting for the carbon tax rebate). The new 6.2 percent health care payroll tax for employers would account for 28 percent of the additional net receipts, and the repeal of tax exclusions for health-care related expenditures would account for another 26 percent. The tax increases for high-income taxpayers from the new AGI surtax, taxing capital gains and dividends at the same rates as other income, and the increased net investment income tax would also substantially increase receipts—including an additional $56 billion in 2016 from an anticipated shift of capital gains realizations into that year as taxpayers try to avoid the higher tax rates beginning in 2017. Those additional receipts would be partially offset, however, by the elimination of the AMT, the personal exemption phaseout, and the limit on itemized deductions.

TABLE 4

Estimated Effect of SandersTax Plan on Tax Receipts

$ billions, FY 2016–36

Provision	Fiscal Year							
	2016	2017	2018	2019	2020	2021	2016–26	2027–36
Individual income and payroll taxes								
Repeal alternative minimum tax	0.0	-21.8	-30.4	-32.4	-33.8	-35.3	-353.3	-565.8
Repeal PEP and Pease limitation	0.0	-23.4	-32.5	-34.5	-36.8	-39.0	-399.3	-686.8
Reduce top tax rates to 28 percent	0.0	-86.2	-121.5	-132.7	-144.3	-154.8	-1,593.9	-2,990.3
Impose 2.2 percent employee health care premium on taxable income	3.1	108.5	151.1	163.0	172.4	180.9	1,819.3	2,900.0
Tax AGI; tax gains/dividends above current 33% bracket as ordinary income; 10 percent NIIT	56.4	111.7	171.3	231.7	280.7	317.4	3,311.4	6,988.4
Repeal exclusion for ESI, cafeteria plans; repeal medical expense deduction	0.0	249.8	344.0	363.8	374.0	387.9	3,968.0	6,351.9
Impose 6.2 percent employer health care premium on wages	0.0	274.9	377.2	392.4	408.7	425.6	4,292.4	6,473.3
Remove OASDI cap on covered earnings in excess of $250,000	0.0	61.1	87.2	95.7	104.7	113.4	1,181.9	2,538.2
Impose 0.4 percent tax to fund Family and Medical Leave Insurance Trust Fund	0.0	17.4	23.9	25.0	25.8	26.9	272.0	409.5
Tax capital gains on gifts and bequests and at death; modify like-kind exhange rules	0.0	58.2	107.0	110.7	114.5	109.9	1,064.4	1,482.1
Tax carried (profits) interest as ordinary income; require derivatives to be marked to market	0.0	1.4	9.7	8.1	7.0	6.2	54.2	39.0
Eliminate fossil fuel tax incentives	0.0	0.6	1.2	1.3	1.3	1.2	10.0	9.1
Repeal miscellaneous health-related tax preferences	0.0	1.3	2.1	2.4	2.7	2.9	30.6	75.2
Total for individual income tax revenues	**59.4**	**753.7**	**1,090.3**	**1,194.3**	**1,276.8**	**1,343.2**	**13,657.8**	**23,023.8**
Corporate income tax								
Enact international reforms	0.0	44.9	90.1	99.7	100.6	101.6	961.0	1,133.7
Eliminate fossil fuel tax incentives	0.0	2.9	4.9	4.9	4.8	4.7	42.6	44.2
Enact other provisions	0.0	0.3	0.6	0.7	0.7	0.8	9.1	15.3
Total for corporate income tax revenues	**0.0**	**48.2**	**95.5**	**105.3**	**106.2**	**107.1**	**1,012.7**	**1,193.3**
Estate and gift taxes								
Restore 2009 estate and gift parameters; increase rates; other reforms	0.0	1.9	12.4	17.3	21.2	25.4	237.0	500.1
Total for estate and gift tax revenues	**0.0**	**1.9**	**12.4**	**17.3**	**21.2**	**25.4**	**237.0**	**500.1**
Excise taxes								
Enact financial transaction tax	0.0	34.8	48.2	58.7	62.2	63.2	592.4	692.7
Repeal fee on health insurers	0.0	0.0	-12.6	-14.6	-15.4	-16.3	-155.0	-264.9
Increase Oil Spill Liability Trust Fund financing rate	0.0	0.1	0.1	0.1	0.1	0.1	1.2	1.7
Enact carbon tax								
Revenue	0.0	43.5	62.3	68.8	75.4	84.3	898.8	1,798.1
Rebate	0.0	-31.0	-64.5	-70.9	-77.7	-86.0	-908.0	-1,799.9
Net	0.0	12.6	-2.2	-2.1	-2.3	-1.7	-9.2	-1.8
Total for excise tax revenues	**0.0**	**47.4**	**33.5**	**42.1**	**44.6**	**45.3**	**429.4**	**427.8**
Total revenue effect of all provisons								
Total revenue change before carbon tax rebate	**59.4**	**882.1**	**1,296.3**	**1,429.9**	**1,526.4**	**1,607.1**	**16,245.0**	**26,944.8**
As percentage of GDP	0.3%	4.5%	6.3%	6.7%	6.8%	6.9%	6.8%	7.5%
Total revenue change including carbon tax rebate	**59.4**	**851.1**	**1,231.8**	**1,359.0**	**1,448.8**	**1,521.1**	**15,337.0**	**25,145.0**
As a percentage of GDP	0.3%	4.3%	6.0%	6.3%	6.5%	6.5%	6.4%	7.0%

Sources: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4); TPC estimates.

Note: AGI = adjusted gross income; AMT = alternative minimum tax; ESI = employer-sponsored insurance; OASDI = old agi, survivor and disability insurance; NIT = net investment income tax; PEP = personal exemption phaseout; GDP = gross domestic product.

If the receipts from the Sanders proposal were used to reduce federal debt there would be additional saving from reduced interest costs. Including the saving from lower interest payments, the Sanders proposals (net of the carbon rebate) could reduce the national debt by $18 trillion through 2026 and $56 trillion through 2036—enough to completely eliminate the publicly held debt. However, the receipts are clearly earmarked in the senator's plan to finance specific new government spending programs and not to reduce the debt.

Even without the additional saving from lower interest payments the 10-year increase in receipts would be substantial. Whether it would be sufficient to pay for all the new federal spending initiatives proposed by Senator Sanders is a question beyond the scope of this analysis. It is worth noting that the costs of those initiatives would be quite high. For example, the Sanders campaign estimates that the Medicare for All proposal alone would cost $1.38 trillion per year and others have estimated that the cost could be much higher.

Effects on the Distribution of Tax Burdens[10]

The Sanders proposal would increase federal taxes throughout the income distribution.[11] In 2017, it would increase tax burdens by an average of nearly $9,000, reducing after-tax income by approximately 12.4 percent (table 5). On average, households across all income levels would see their tax burdens increase, but the highest-income households would have the largest increase, both in dollars and as a percentage of income. The top quintile—or top fifth of the distribution—would experience an average tax increase of almost $45,000 (a 17.2 percent decrease in after-tax income), the top 1 percent would see an average increase almost 12 times as large (just over $525,000, or 33.5 percent of after-tax income), and the top 0.1 percent would see an average tax increase of nearly $3.1 million (44.8 percent of after-tax income). By contrast, the average tax increase for the lowest-income households would be just $165, a reduction of 1.3 percent of after-tax income. Middle-income households would have an average tax increase of about $4,700—8.5 percent of after-tax income.

TABLE 5

Distribution of Federal Tax Change under Sanders Tax Plan

By expanded cash income percentile, 2017

Expanded cash income percentile[a]	Percent change in after-tax income[b] (%)	Share of total federal tax change (%)	Average federal tax change ($)	Average federal tax rate[c]	
				Change (percentage points)	Under the proposal (%)
Lowest quintile	-1.3	0.5	165	1.2	5.3
Second quintile	-5.1	4.0	1,625	4.7	12.8
Middle quintile	-8.5	10.3	4,692	7.3	20.8
Fourth quintile	-9.8	16.6	9,051	8.1	25.0
Top quintile	-17.2	68.3	44,759	12.8	38.4
All	-12.4	100.0	8,964	10.0	29.8
Addendum					
80–90	-10.3	11.6	14,809	8.3	28.1
90–95	-9.9	7.6	19,828	7.8	29.4
95–99	-11.6	10.8	37,801	8.7	33.8
Top 1 percent	-33.5	38.3	525,365	22.5	55.4
Top 0.1 percent	-44.8	23.0	3,081,986	29.5	63.7

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

Notes: Number of Alternative Minimum Tax (AMT) taxpayers (millions). Baseline: 4.5; Proposal: 0. Projections are for calendar year 2017; baseline is current law (including provisions in the Protecting Americans from Tax Hikes Act of 2015 and the Consolidated Appropriations Act of 2016). The proposal includes all individual, payroll, corporate, excise, and estate tax provisions. http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm.

[a] The percentile includes both filing and nonfiling units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $23,099; 40%, $45,153; 60%, $80,760; 80%, $142,601; 90%, $209,113; 95%, $295,756; 99%, $732,323; 99.9%, $3,769,396.

[b] After-tax income is expanded cash income less individual income tax net of refundable credits, corporate income tax, payroll taxes (Social Security and Medicare), estate tax, and excise taxes.

[c] Average federal tax (includes the individual and corporate income tax, payroll taxes for Social Security and Medicare, estate tax, and excise taxes) as a percentage of average expanded cash income.

Under the proposals, an estimated 69 million households would pay no income tax in 2017—8 million fewer than the number under current law. That would reduce the estimated percentage of households paying no income tax from 44 percent under current law to approximately 40 percent under Sanders's plan. More households would pay income tax under the Sanders proposal because of the 2.2 percent surtax on taxable income and the repeal of health care–related tax exclusions and deductions.

Nominal tax increases would be larger in 2025—averaging nearly $11,750. The increases would represent roughly the same percentage decline in after-tax income as in 2017 (12.3

percent; table 6 and figure 1). The highest-income households (the top 1 percent) would see their after-tax income fall an average of nearly $740,000, or 31.9 percent. In contrast, households in the bottom quintile would, on average, have virtually no change in their after-tax income.

TABLE 6

Distribution of Federal Tax Change under Sanders Tax Plan

By expanded cash income percentile, 2025

Expanded cash income percentile[a]	Percent change in after-tax income[b] (%)	Share of total federal tax change (%)	Average federal tax change ($)	Average federal tax rate[c]	
				Change (percentage points)	Under the proposal (%)
Lowest quintile	0.0	0.0	-5	0.0	4.5
Second quintile	-4.3	3.5	1,844	3.9	12.6
Middle quintile	-8.0	10.1	5,879	6.9	21.1
Fourth quintile	-9.6	16.3	11,448	8.0	25.2
Top quintile	-17.7	69.9	59,743	13.0	39.3
All	-12.3	100.0	11,736	9.8	30.1
Addendum					
80–90	-10.3	11.3	18,656	8.3	28.3
90–95	-10.1	7.3	24,796	7.9	29.6
95–99	-12.3	10.8	49,551	9.2	34.3
Top 1 percent	-31.9	40.6	739,144	21.2	54.7
Top 0.1 percent	-41.2	22.8	4,012,691	27.1	61.4

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

Notes: Number of Alternative Minimum Tax (AMT) taxpayers (millions). Baseline: 4.5; Proposal: 0. Projections are for calendar year 2017; baseline is current law (including provisions in the Protecting Americans from Tax Hikes Act of 2015 and the Consolidated Appropriations Act of 2016). The proposal includes all individual, payroll, corporate, excise, and estate tax provisions. http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm.

[a] The percentile includes both filing and nonfiling units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $26,101; 40%, $51,178; 60%, $87,777; 80%, $148,458; 90%, $217,212; 95%, $289,677; 99%, $846,843; 99.9%, $5,205,348.

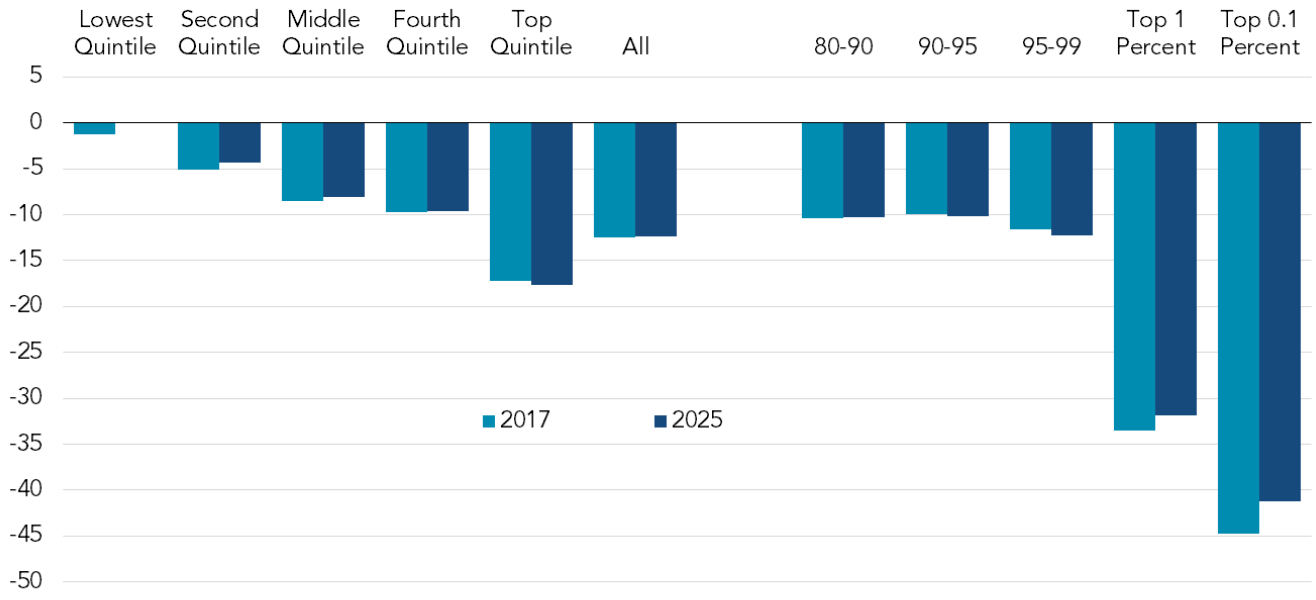
[b] After-tax income is expanded cash income less individual income tax net of refundable credits, corporate income tax, payroll taxes (Social Security and Medicare), estate tax, and excise taxes.

[c] Average federal tax (includes the individual and corporate income tax, payroll taxes for Social Security and Medicare, estate tax, and excise taxes) as a percentage of average expanded cash income.

FIGURE 1

Change in After-Tax Income under Sanders Tax Plan

By expanded cash income percentile, 2017 and 2025



Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

TPC's focus on the revenue implications of the Sanders proposals highlights how the proposal's costs would be distributed across the population on the basis of income. However, the new and expanded government programs would provide benefits that TPC's analysis does not show. The ultimate distribution of winners and losers would depend on the distribution of those benefits as well as the new taxes.

Effects on Tax Complexity and Administration

Senator Sanders's proposals would simplify the tax code in several ways. Eliminating the individual AMT, the limitation on itemized deductions, and the phaseout of personal exemptions would make tax preparation easier. Taxing long-term capital gains and dividends at the same rates as ordinary income would simplify tax preparation (compared with the complex alternative rate schedule that currently applies). The proposals would also eliminate benefits from tax-minimizing strategies that are based on current differences in tax rates. Furthermore, the proposals would simplify recordkeeping because investors would no longer have to distinguish gains based on holding periods.

Setting a top tax rate of 30.2 percent on taxable income is a relatively simple way of limiting the value of certain exclusions, exemptions, and deductions for high-income taxpayers. High-income households would experience the additional burden of computing the add-on AGI surtaxes, but tax preparation software would make such calculations manageable.

ECONOMIC EFFECTS

Impact on Saving and Investment

The Sanders proposals would substantially reduce incentives to save and invest in the United States. The tax increases for high-income taxpayers from the new AGI surtax, taxing capital gains and dividends at the same rates as other income, and the increased net investment income tax would reduce the after-tax return on savings and investments for those taxpayers. The 2.2 percent surtax on taxable income to pay for the new health insurance program would raise the effective marginal tax rate on capital income for other taxpayers as well, but those changes would be modest compared to the increases at the top of the income distribution (table 7). If the additional revenues are spent on the new and expanded government programs that Senator Sanders proposes, there will be no reduction in federal debt and thus little change in interest rates to offset the economic effects of higher tax rates.

TABLE 7

Effective Marginal Individual Income Tax Rates on Capital Income

By expanded cash income percentile, 2017

Expanded cash income percentile[a]	Tax units (thousands)	Long-term capital gains			Qualified dividends			Interest income		
		Current law (%)	Sanders proposal (%)	Change (percentage points)	Current law (%)	Sanders proposal (%)	Change (percentage points)	Current law (%)	Sanders proposal (%)	Change (percentage points)
Lowest quintile	47,879	0.8	1.6	0.8	0.3	1.1	0.8	2.8	3.8	1.1
Second quintile	37,990	1.3	3.0	1.7	0.9	2.6	1.7	6.1	9.3	3.2
Middle quintile	34,343	6.3	10.0	3.6	7.5	11.9	4.4	18.3	22.5	4.3
Fourth quintile	28,544	9.8	12.4	2.6	11.0	13.8	2.8	21.9	24.7	2.8
Top quintile	23,785	22.6	53.8	31.2	22.0	48.9	26.9	34.7	48.6	13.9
All	173,829	20.7	48.5	27.8	18.8	40.3	21.5	27.4	37.3	9.9
Addendum										
80–90	12,240	12.2	14.7	2.5	14.1	16.8	2.7	25.1	27.0	1.9
90–95	5,942	14.2	18.7	4.6	16.4	21.5	5.2	28.1	32.3	4.2
95–99	4,467	19.6	38.0	18.4	22.6	42.7	20.2	35.5	46.4	10.9
Top 1 percent	1,136	23.9	59.5	35.6	24.0	59.4	35.4	37.5	56.1	18.6
Top 0.1 percent	116	24.1	62.0	37.9	24.0	62.1	38.1	36.8	56.6	19.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

Notes: Projections are for calendar year 2017. Marginal effective tax rates are weighted by the appropriate income source.

[a] Includes both filing and non-filing units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $23,099; 40%, $45,153; 60%, $80,760; 80%, $142,601; 90%, $209,113; 95%, $295,756; 99%, $732,323; 99.9%, $3,769,396.

The overall effect of taxes on incentives to save and invest can be summarized in the proposal's effect on the marginal effective tax rate (METR) on new investments (table 8). The METR is a forward-looking measure of the impact of the tax system on the rate of return of a

hypothetical marginal (i.e., break even) investment project. We compare the METR on different investments under the Sanders proposals with the METR under current law, including the provisions of the Protecting Americans from Tax Hikes Act of 2015 and the tax provisions in the Consolidated Appropriations Act of 2016.

TABLE 8

Marginal Effective Tax Rates on New Investment

By percent, 2017

Category	Current law	Sanders plan	Change (percentage points)
Business investment	**23.2**	**32.0**	**8.8**
Corporate	25.7	36.9	11.2
Equipment	21.6	33.5	11.9
Structures	29.5	40.1	10.6
Intellectual property products	1.3	16.2	14.9
Inventories	39.8	48.9	9.1
Pass-through	19.1	23.9	4.8
Equipment	15.8	20.4	4.6
Structures	22.4	27.7	5.3
Intellectual property products	-3.3	-1.8	1.5
Inventories	31.9	38.1	6.2
Addendum			
Corporate (equity financed)	32.5	43.5	11.0
Corporate (debt financed)	-6.2	6.5	12.7
Variation (s.d.) across assets	12.8	12.6	
Variation (s.d.) across industries	6.4	6.3	

Source: Urban-Brookings Tax Policy Center calculations. See Rosenberg and Marron (2015) for discussion.
Notes: s.d. = standard deviation. Estimates are for calendar year 2017; the baseline is current law and includes the effect of provisions passed as part of the Protecting Americans from Tax Hikes Act of 2015 and the Consolidated Appropriations Act of 2016.

By raising taxes on new investments, the Sanders proposals would raise the METR on all forms of investments. The METR on nonresidential business investments would increase from 23.2 percent to 32.0 percent (table 8). The proposals would make the playing field across different types of investments more uneven. Under current law, for example, corporate investment faces an average METR of 25.7 percent, which is 6.6 percentage points above the 19.1 percent average METR for investments by pass-through entities, making the latter more attractive. The sharply higher tax rates on capital gains and dividends for high-income filers

would exacerbate the double-taxation of corporate stock that arises because corporate income is taxed at both the business and the individual level. Under the Sanders proposals, the difference between pass-through businesses and corporations would nearly double to 13 percentage points as corporate investments faced an average 36.9 percent METR, compared with a 23.9 percent rate for pass-through entities.

Impact on Labor Supply

The proposals would substantially raise the effective tax rate on labor income (the tax on an additional dollar of wages and salaries for employees and self-employment income for others). The effective marginal tax rate on labor income would increase by an average of almost 8 percentage points and by over 17 percentage points for the top 1 percent (table 9). Research suggests that taxes play a small or even negligible role on labor supply decisions for most workers. When tax rates rise, some workers choose to work less because the rewards for working decrease, but some choose to work more to increase their take-home pay and meet consumption goals.

Second earners—lower-earning spouses—are sensitive to taxes, however. A person married to a high-earner might face a very high marginal tax rate on the first dollar of earnings, which, when combined with the costs of working (for example, paying for child care), can make working seem especially unappealing. By increasing marginal tax rates, the proposal would increase the disincentive for potential second earners to enter the workforce.

TABLE 9

Effective Marginal Individual Income Tax Rates on Wages, Salaries, and Self-Employment Income

By expanded cash income percentile, 2017

Expanded cash income percentile[a]	Tax units (thousands)	Individual income tax			Combined individual income tax and payroll tax		
		Current law (%)	Sanders proposal (%)	Change (percentage points)	Current law (%)	Sanders proposal (%)	Change (percentage points)
Lowest quintile	47,879	1.7	2.7	0.9	15.6	20.6	5.0
Second quintile	37,990	15.7	17.6	1.9	29.5	35.5	6.0
Middle quintile	34,343	19.0	20.1	1.1	32.6	37.8	5.2
Fourth quintile	28,544	19.9	21.9	2.0	33.4	39.5	6.1
Top quintile	23,785	31.0	33.0	2.0	38.1	47.8	9.7
All	173,829	24.6	26.4	1.8	34.8	42.6	7.8
Addendum							
80–90	12,240	25.3	26.5	1.1	35.9	41.1	5.2
90–95	5,942	27.6	28.2	0.6	35.4	40.6	5.2
95–99	4,467	33.2	35.7	2.5	38.6	50.2	11.6
Top 1 percent	1,136	39.0	42.9	3.9	42.9	60.4	17.5
Top 0.1 percent	116	39.3	46.5	7.2	43.1	64.2	21.2

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).
Notes: Projections are for calendar year 2017. Effective marginal tax rates are weighted by wages and salaries.

[a] Includes both filing and non-filing units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $23,099; 40%, $45,153; 60%, $80,760; 80%, $142,601; 90%, $209,113; 95%, $295,756; 99%, $732,323; 99.9%, $3,769,396.

Macroeconomic Impacts

If they are large enough, changes in fiscal policies—such as increases or decreases in taxes and spending—can affect the economy in both the short and the long run. In the short run, most of this effect comes through changes in the demand for goods and services. Increases in government spending or decreases in taxes can boost demand and, if the economy is operating below its potential, can cause businesses to increase production. In the longer run, when the economy is operating at or close to its potential, fiscal policy can influence the supply of labor and capital and thereby boost potential output.

Senator Sanders's proposals would increase income tax rates, particularly for high-income taxpayers and especially on income from capital gains and dividends; would broaden the income tax base by limiting exclusions, deductions, and exemptions; would expand payroll taxes and estate and gift taxes; and would introduce two new excise taxes.

Gale and Samwick (2014) discuss the effect of income tax changes on the long-term growth rate of the economy. They suggest that the potential effects of a change in the individual income tax can be broken into four parts. The first effect, known as the "substitution effect," is that higher tax rates reduce incentives to work, save, and invest, whereas lower tax rates have the opposite effect.

A second effect, the "income effect," tends to offset the first, however. Tax increases lower the after-tax return to labor, saving, and investment, which makes it harder to reach consumption targets, such as paying for college or retirement. Because taxpayers have less after-tax income, some decide to work, save, or invest more.

The third effect of tax increases stems from whether the additional revenue is used to reduce federal borrowing or to increase federal spending. If the additional revenue is used to decrease federal deficits, then national saving increases and more funds are available for private investment, which increases the economy's potential output.

The fourth effect stems from base broadening. Broadening the base by reining in distortionary tax expenditures reduces the role of taxation in determining the allocation of resources across the economy, which in turn can increase economic output. For example, the carried interest loophole favors labor earnings of workers in private equity partnerships over workers engaged in other activities. Eliminating it could lead to more productive allocation of valuable human capital.

Nonetheless, distortionary tax expenditures remain, and taxation continues to play a part in determining the allocation of resources across the economy, which, in turn, can decrease economic output. Moreover, higher tax rates magnify the value of existing tax expenditures and their resulting economic distortions. In addition, certain tax expenditure limits can indirectly raise marginal tax rates. Gravelle and Marples (2015) point out that some tax expenditures—such as deductibility of state and local taxes—tend to increase with income. By limiting the value of these tax expenditures, Sanders would indirectly increase the marginal effective tax rate on an additional dollar of earnings.

The actual effect of tax changes is an empirical question, and researchers have applied many methods to estimate such effects.[12] Examination of historical examples of tax reform—including shifts in tax policies between the pre– and post–World War II periods and the tax changes that occurred in 1981, 1986, 2001, and 2003—suggest little impact of taxes on growth. Simulation models show that deficit-financed tax cuts are less effective at promoting growth

than are tax cuts financed by cutting unproductive government spending (Auerbach and Slemrod 1997; Dennis et al. 2004; Desai and Goolsbee 2004; Gale and Potter 2002).

Because Sanders's proposals would increase taxes the most on high-income households, empirical evidence on the effect of top tax rates on economic growth is particularly relevant. Gruber and Saez (2002) find that reported incomes of high earners are particularly sensitive to marginal tax rates. However, Piketty, Saez, and Stantcheva (2014), using evidence from 18 countries in the Organisation for Economic Co-operation and Development for 1960-2010, find no evidence of a correlation between changes in top marginal tax rates and growth in real GDP per capita.

One challenge in estimating the effect of taxes on the economy is that tax changes are endogenous: for example, policymakers may choose to enact tax cuts when the economy is weak, which would lead to large apparent growth responses, or they might cut taxes when the economy is strong and revenues are surging, which would produce the opposite response. Romer and Romer (2010) identified plausibly exogenous US tax reforms in time-series data and measured a positive effect of net tax cuts on economic activity. Although Romer and Romer could not distinguish short-term, demand-side responses from more permanent, supply-side responses, some recent research (Barro and Redlick 2011; Mertens 2015) finds evidence that it is a supply-side effect.[13]

Senator Sanders has been exceptionally specific about how he would spend the additional revenue on new and expanded programs. There would be no increase in national saving from reduced federal deficits and thus no effect on the funds available for private investment. Increases in government support through expanded health insurance coverage, free college tuition, and paid family and medical leave would effectively boost household resources. Depending on the degree to which households view that support as equivalent to an increase in their after-tax income, they would have less incentive to work, save, or invest more.

Some of Senator Sanders's new spending programs could boost long-term economic growth by investing in human and physical capital. Increased funding for higher-education can increase skills and labor productivity. Rebuilding the nation's roads, bridges, airports, and waterways would make businesses more productive. Like the effect of tax changes, however, the effect of government investment on economic growth is uncertain. A Congressional Budget Office study of the effects of investments in transportation and waterways, for example, found significant variations in the returns to different projects (Congressional Budget Office 2010). Romer and Romer (2016) concluded that the effects of Sanders's spending and regulatory proposals (including doubling the minimum wage) on productive capacity "are likely small and possibly negative."

It is also important to note that the proposed tax changes on both labor and capital income are very large compared with any tax policy changes since World War II, so the empirical

evidence of relatively small effects cited earlier may not apply. The lack of prior historical experience for changes of this magnitude makes the macroeconomic effects of Sanders's plan especially uncertain, but there is a risk that the very large tax increases could significantly weaken the US economy.

CONCLUSIONS

Senator Sanders's tax proposals would modestly raise tax rates for most taxpayers but would raise them significantly for high-income taxpayers. Repealing the AMT and the limit on personal exemptions and itemized deductions would simplify the tax code. By taxing capital gains and dividends at the same rates as other income and by eliminating the opportunity to avoid the tax on capital gains through gifts and bequests of appreciated property, the plan would reduce the incentives and opportunities to engage in some forms of wasteful tax avoidance and would simplify the calculation of taxes on gains.

The proposal includes two substantial new excise taxes: a financial transaction tax and a carbon tax. The FTT would improve financial markets in some ways—by discouraging flash trading and speculation—but it would also reduce liquidity and raise the cost of capital for businesses. A carbon tax, in contrast, would make markets work better by putting a price on carbon emissions, thereby forcing households and businesses to take account of the environmental costs of their activities.

The Sanders tax proposals would increase federal revenues by $15.3 trillion between 2016 and 2026, or about 6.4 percent of GDP. By themselves, the tax increases could reduce the national debt substantially and might also reduce interest rates, but Senator Sanders has been quite explicit that the revenues are earmarked to finance an expansive set of new spending priorities. Thus, the plan is unlikely to do much, if anything, to reverse the currently unsustainable path for public debt. Moreover, there is a risk that spending might outstrip the significant new revenues and exacerbate the nation's long-term financial imbalance.

At the same time, the higher tax rates would significantly reduce incentives to work and save, especially for high-income households, and would raise the cost of capital for businesses.

APPENDIX A. TPC'S ASSUMPTIONS ABOUT THE SANDERS PROPOSALS

Because candidates' proposals rarely include all the details needed to model them accurately, we asked their staffs to clarify provisions or further specify details. We sent the following questions and working assumptions, which were based on Sanders's statements and campaign documents, to the Sanders campaign. A representative of the campaign kindly reviewed all our assumptions and confirmed that most were consistent with Sanders's proposals. However, as noted next, in a few instances the campaign provided us with more information about the proposals, and we revised our assumptions accordingly. A campaign's review of our questions and assumptions does not imply that the campaign agrees with or endorses our analysis.

1. Individual Income Tax

Q1. The documentation and our discussions with the campaign staff indicate that the senator proposes to retain the current income tax brackets that are based on taxable income for rates up to 28 percent, to reduce the current rates on taxable income above 28 percent to 28 percent, and to impose a surtax that is based on adjusted gross income (AGI) with total rates (including the 28 percent rate) as follows:

- 37 percent on income between $250,000 ($200,000 for single filers) and $500,000 (i.e., an additional 9 percent on AGI),
- 43 percent on income between $500,000 and $2 million [(5 percent rate on AGI),
- 48 percent on income between $2 million and $10 million (20 percent rate on AGI), and
- 52 percent on income above $10 million (24 percent rate on AGI).

The individual AMT, the personal exemption phaseout (PEP) and the limitation on itemized deductions ("Pease") would be repealed. Does the same initial 37 percent bracket of $200,000 apply to single, head of household, and married filing separate taxpayers? Are the brackets indexed for inflation, and if so from what year? Can unused AMT credits be carried forward and used against regular income tax?

A1. Absent further guidance, we assume that the $200,000 initial 37 percent bracket applies to all filing statuses except joint (and surviving spouse), the brackets are indexed for inflation after 2015, and unused AMT credits are lost.

NOTE: Based on the responses of the representative of the Sanders campaign, we changed our assumptions to make the beginning of the 37 percent bracket $125,000 for married filing separate filers and $237,500 for head of household filers. Further, the brackets would be indexed for inflation after 2017.

Q2. The documentation indicates that in addition to the rates described in Q1, the proposal includes an additional 2.2 percent rate on taxable income. Does this additional rate apply to the special rates on capital gains and dividends?

A2. We assume that the 2.2 percent rate does apply, so, for example, capital gains that under current law would be taxed at 15 percent would be taxed at 17.2 percent.

Q3. The documentation and our discussions with the campaign staff indicate that the Senator proposes to tax capital gains and dividends at the proposed ordinary income tax rates for taxpayers with incomes above $250,000 ($200,000 for single filers). Does the threshold for single filers apply to all filing statuses except joint? Is it indexed for inflation, and if so from what year?

A3. We assume that the $200,000 threshold applies to all filing statuses except joint, and the thresholds are indexed for inflation after 2015.

NOTE: Based on the responses of the representative of the Sanders campaign, we changed our assumptions so that the special current law rates on capital gains continue to apply through the current law 33 percent bracket, with indexing for inflation after 2017.

Q4. The documentation and our discussions with the campaign staff indicate that the Senator proposes to tax capital gains at death and tax the gains in gifts of appreciated property, but with an exclusion of $250,000 less the transferor's (the decedent's or donor's) income. Are all gifts, including gifts to charitable organizations, covered? Is AGI the income measure? Is the exclusion limit the same for all filing statuses? Is it indexed for inflation, and if so from what year?

A4. We assume that that all gifts are covered, AGI is the income measure, the same threshold applies to all filing statuses, and that the threshold is indexed for inflation after 2015.

Q5. The documentation states that the like-kind exchange rules would be modified. Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on page 111 of the Treasury Green Book (available at https://www.treasury.gov/resource-center/tax-policy/Documents/General-Explanations-FY2016.pdf)?

A5. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it applies to like-kind exchanges completed after December 31, 2016.

Q6. The documentation and our discussions with the campaign staff indicate that the Senator proposes to require derivatives to be marked to market each year. Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 99-101 of the Treasury Green Book?

A6. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it applies to derivative contracts entered into after December 31, 2016.

Q7. The documentation and our discussions with the campaign staff indicate that the Senator proposes to restrict prepaid forward contracts in some way. Can you provide any further specifications for this proposal?

A7. Without additional guidance, we will be unable to include this proposal.

NOTE: Based on the responses of the representative of the Sanders campaign, we interpret this proposal to be included in the proposal to require derivatives to be marked to market.

Q8. The documentation indicates that the Senator proposes to "end the carried interest loophole." Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 163-64 of the Treasury Green Book?

A8. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it would be effective for taxable years ending after December 31, 2016.

Q9. The documentation indicates that the Senator proposes to increase the rate of the surtax on net investment income (the NIIT) enacted as part of the Affordable Care Act (ACA) by 6.2 percent (from 3.8 percent to 10.0 percent). Has this proposal been superseded by the proposed taxation of capital gains at ordinary rates for higher-income taxpayers (Q3)?

A9. We assume that this proposal has been superseded and that the rate of the NIIT remains at 3.8 percent.

NOTE: The responses of the representative of the Sanders campaign made clear that this proposal has not been superseded, so we included an increase of the NIIT rate to 10 percent.

Q10. The documentation for the Senator's "Medicare for All" proposal states that "several tax breaks that subsidize health care (health-related 'tax expenditures')" would become obsolete and disappear, most importantly the exclusion from income (and payroll) taxes for employer-provided health care. Which specific other health-related tax expenditures does the proposal contemplate becoming obsolete? Would the exclusion be retained for employer provided Medigap-type policies? Would other such provisions be repealed outright?

A10. We assume that in addition to the exclusion for employer-provided health insurance (including dental, vision, and Section 125 cafeteria plans), the following provisions would

be repealed: the above-the-line deduction for medical insurance premiums paid by self-employed individuals; allowance of contributions to MSAs or HRS/HSAs; the credit for health insurance expenses of small businesses; and distributions from retirement plans for health insurance premiums. Note that although the refundable premium assistance tax credit is listed as a tax expenditure by Treasury, it is not considered a tax provision for budget purposes.

NOTE: Based on the responses of the representative of the Sanders campaign, we also included repeal of the itemized deductions for medical expenses and the special deduction for Blue Cross/Blue Shield.

2. Estate and Gift Taxes

Q11. The documentation indicates that the Senator proposes to restore the 2009 exemption levels for the estate tax of $3.5 million ($7 million of a married couple's estate), with a new rate structure as follows:

- 45 percent for the value of an estate between $3.5 million (or $7 million for couples) and $10 million;
- 50 percent of the value of an estate between $10 million and $50 million; and
- 55 percent of the value of an estate in excess of $50 million.

A surtax of 10 percent would apply to estates valued at $500 million ($1 billion or more for couples). The proposal would also "sharply limit" the annual exclusion from the gift tax. Apart from the proposed rates above 45 percent and the surtax, does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 193-94 of the Treasury Green Book?

A11. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, apart from rates, except that it would be effective for transfers made after December 31, 2016. We assume that the 10-percent surtax is effectively an add-on tax with a fully portable exemption of $500 million (not indexed for inflation).

Q12. The documentation indicates that the Senator proposes to "strengthen" the generation-skipping transfer (GST) tax. Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 200-01 of the Treasury Green Book?

A12. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it would be effective for trusts created, and additions to an existing trust made, after December 31, 2016.

Q13. The documentation indicates that the Senator proposes to "prevent abuses" of grantor retained annuity trusts (GRATS) and other grantor trusts. Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 197-99 of the Treasury Green Book?

A13. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it would be effective for GRATS created, and to other trusts that engage in a describe transaction, after December 31, 2016.

Q14. The documentation indicates that the Senator's proposal would require consistency between valuations for estate and income tax purposes. Does the Senator's proposal differ in any way from the proposal in the Administration's FY2016 budget, described on pages 195-96 of the Treasury Green Book?

A14. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal, except that it would be effective for transfers made after December 31, 2016.

Q15. The documentation states that the Senator's proposal would modify valuation discounts. Does the proposal differ in any way from the proposal in the Administration's FY2013 budget, described on page 79 of the Treasury Green Book (available at https://www.treasury.gov/resource-center/tax-policy/Documents/General-Explanations-FY2013.pdf)?

A15. We assume the Senator's proposal is the same as the Administration's FY2013 budget proposal, except that it applies to transfers after December 31, 2016.

Q16. The documentation indicates that the Senator's proposal would increase the estate tax allowance for family famers to $3 million and the maximum estate tax exclusion for conservation easements to $1 million. Are these amounts indexed for inflation, and if so from what year?

A16. We assume both limits are indexed for inflation after 2015

3. Payroll Taxes

Q17. The documentation and our discussions with the campaign staff indicate that the Senator proposes a new 6.2 percent employer payroll tax to partially finance "Medicare for All." Is the base of this new tax the same as the base for the current OASDI tax (i.e., wages up to $118,500 in 2016), the base for the current HI tax (i.e., wages with no cap), the base for OASDI under the proposal (i.e., wages up to $118,500 and above $250,000 in 2016; see below), or some other base?

A17. We assume the base is the current HI base.

Q18. The documentation indicates that the proposal would impose the combined (employer and employee) OASDI rate to wages above $250,000 (unindexed) to partially finance the expansion and extension of Social Security. Is this a correct description of the proposal?

A18. We assume the proposal is as described.

Q19. The documentation indicates that the payroll tax exclusion for employer-provided health care would become obsolete (see Q10 above). Would the exclusion be repealed outright, or would it be available if employers offered Medigap-type policies?

A19. We assume the exclusion would be repealed.

NOTE: The responses of the representative of the Sanders campaign made clear that the exclusion would not be repealed outright, but would be expected to more or less disappear. We retained our assumption for purposes of our analysis.

Q20. The documentation indicates that the Senator proposes a new 0.2 percent payroll tax on both employers and employees on wages up to the OASDI cap to finance a paid family and medical leave program. Is this a correct description of the proposal?

A20. We assume the proposal is as described.

4. Business Taxes

Q21. The documentation indicates that the Senator's proposal includes the end of deferral of current U.S. tax on the earnings of controlled foreign subsidiaries (CFCs), treat foreign companies that are managed and controlled in the U.S. as U.S. corporations for tax purposes, restrict inversions by U.S. corporations, and limit the offset of the foreign tax credit to income that is subject to U.S. tax. Are these proposals different in any way from the corresponding provisions in S. 922 (114th Congress)? Is the provision of S. 922 to limit the deduction of interest expense of a U.S. corporation that is a member of a financial reporting group considered part of the campaign proposal?

A21. We assume the proposal includes all of the provisions of S. 922, and are unchanged except that the provisions are generally effective for taxable years starting after December 31, 2016.

Q22. The documentation indicates that the Senator's proposal would eliminate tax breaks for big oil, gas, and coal companies. Is this proposal different in any way from the proposal to eliminate fossil fuel tax breaks in the Administration's FY2016 budget, described on pages 93-98 of the Treasury Green Book, and the provision of S. 922 to limit or deny the foreign tax credit to large integrated oil companies that are dual capacity taxpayers?

A22. We assume that the Senator's proposal is the same as the Administration's FY2016 budget proposal and the provision of S. 922, except that the provisions would generally be effective for production or costs incurred, or taxable years beginning, after December 31, 2016.

NOTE: Based on the responses of the representative of the Sanders campaign, we also included longer amortization periods for air pollution control facilities and repeal of the special rules for mining reclamation reserves.

5. Excise Taxes

Q23. The documentation indicates that the Senator's proposal includes a financial transaction tax (FTT) with rates of 0.5 percent on stock trades, 0.1 percent on bonds, and 0.005 percent on derivatives. Does the rate on stock trades apply to options? Are trades in government bonds taxed? Are the values of futures and swaps the underlying notional values of the securities? Are the rates on bonds and swaps adjusted for years to maturity, with the stated rates the weighted averages?

A23. We assume that the FTT rate on options is the same as the rate on stocks, that trades in government bonds are taxed, that futures and swaps are valued at the underlying notional values of securities, and that the stated rates for bonds and swaps are weighted averages of rates adjusted by years to maturity.

Q24. The documentation indicates that if "investment houses chose to pass the tax along to investors, this plan would provide a tax credit to individuals making under $50,000 and couples making under $75,000." What entity, using what criteria, would determine whether investment houses chose to pass the tax along to investors? Would such determinations be made for all investment houses, types of securities and investors, or would separate determinations be made for each? If such a determination was made, would an individual receive a credit for direct trades made by them, or would the credit pass through from trades made by mutual funds, IRAs, 401(k)s, and similar savings vehicles?

A24. Without additional guidance, we will be unable to include this proposal.

NOTE: The representative of the Sanders campaign indicated that this proposal is included in S. 1371, the "Inclusive Prosperity Act," introduced by Senator Sanders last year.

Q25. Under the Senator's "Medicare for All" proposal, some of excises and penalties included in the ACA, such as the "Cadillac tax" on high-premium employer plans, the penalties from the employer and employee mandates, and the excise on health insurers, would become obsolete. Would they be repealed outright? Would any other ACA excises, such as the excises on medical devices and brand name drugs, be repealed?

A25. We assume that the ACA excises and penalties that become obsolete are repealed, but that the other ACA excises are retained.

Q26. The documentation indicates that the Senator's plan includes a carbon tax. Can you provide any specifications for this tax – the base, the rate, whether the rate changes over time, and whether there is any provision to use some of the receipts for tax reductions or credits for low-income families?

A26. Without additional guidance, we will be unable to include this proposal.

NOTE: The representative of the Sanders campaign indicated that this proposal is included in S. 2399, the "Climate Protection and Justice Act of 2015," introduced by Senator Sanders last year. We therefore included the carbon tax in our analysis.

6. Effective Date

Q. Are all provisions intended to go into effect in 2017? Are any assumed to be phased in, and, if so, over what time period?

A. We assume the provisions would be effective beginning in 2017, after the Presidential election, and that no provisions are phased in.

APPENDIX B. THE EFFECT OF SENATOR SANDERS'S PROPOSALS ON WAGES

Under Senator Sanders's proposal for a federally administered, universal health insurance plan, employers would pay a premium of 6.2 percent of payroll, but they would no longer need to pay private health insurance premiums. If one assumes that total employee compensation remains the same, a worker whose employer pays private health insurance premiums that are more than 6.2 percent of his or her wages will see an increase in take-home pay under the Sanders proposal. Some or all of that saving may be offset by other payroll tax increases, however.

In the hypothetical examples shown in table B1, total payroll taxes (including the portion paid by employers) would increase by between $3,900 and nearly $5,000 for middle-income workers. Despite the increase in payroll taxes, the workers covered by employer-sponsored health insurance plans would save enough in the switch from employer-sponsored health insurance coverage to the new government plan to more than offset the additional payroll taxes, and thus their take–home pay would increase. The worker without health insurance would have lower take-home pay but in return would gain health insurance coverage and coverage for paid family and medical leave (FML).

High-income workers are likely to see a decrease in take-home pay under the Sanders proposals. Not only would their employers likely contribute more for health insurance than before, but also the extension of the Social Security payroll tax to earnings over $250,000 and the new FML payroll tax would reduce their take-home pay.

TABLE B1

Compensation in the Sanders Plan

	Middle-income				High-income		
	Current law			Sanders plan	Current law		Sanders plan
	No ESI	Low-Cost Health Plan	High-Cost Health Plan		Low-Cost Health Plan	High-Cost Health Plan	
	($)	($)	($)	($)	($)	($)	($)
Total compensation	50,000	50,000	50,000	50,000	300,000	300,000	300,000
Employer-sponsored health insurance	0	5,000	7,500	0	5,000	7,500	0
Employer payroll tax (OASDI)	2,880	2,592	2,448	2,718	7,347	7,347	8,615
Employer payroll tax (HI)	673	606	572	636	4,111	4,076	3,922
New health care premium	0	0	0	2,718	0	0	16,768
New payroll tax for family and medical leav	0	0	0	88	0	0	237
Cash wage	46,447	41,802	39,480	43,840	283,542	281,077	270,458
Employee payroll tax (OASDI)	2,880	2,592	2,448	2,718	7,347	7,347	8,615
Employee payroll tax (HI)	673	606	572	636	4,111	4,076	3,922
Additional Medicare tax	0	0	0	0	752	730	634
New payroll tax for family and medical leav	0	0	0	88	0	0	237
Take-home pay (before income tax)	42,894	38,604	36,460	40,399	271,331	268,925	257,049
Memo: Total payroll tax liability	7,106	6,396	6,040	9,601	23,669	23,575	42,951

Source: Urban-Brookings Tax Policy Center calculations.

Note: Calculations are based on 2015 tax law for a single taxpayer with only wage income.

APPENDIX C. COMPARISON OF TAX POLICY CENTER REVENUE ESTIMATES WITH OTHER PUBLISHED ESTIMATES

TPC's revenue estimates differ from other published estimates of the revenue cost of Senator Sanders's tax proposals (table C1). TPC's 10-year revenue cost ($15.4 trillion) is larger than the $13.0 trillion estimate from Citizens for Tax Justice (CTJ 2016) and the $13.6 trillion estimate from the Tax Foundation (Cole and Greenberg 2016).

TABLE C1

Tax Policy Center Revenue Estimates for the Sanders Proposal Compared with Other Public Estimates

$ billions

	Citizens for Tax Justice[a] 2016-25	Tax Foundation 2015–24	Tax Policy Center 2016–26
Individual and Payroll	N/A	13,224	13,658
Corporate	N/A	62	1,013
Excise	N/A	0	429
Estate	N/A	288	237
Total	**13,000**	**13,574**	**15,337**

Sources: Citizens for Tax Justice (2016); Cole and Greenberg (2016); and Urban-Brookings Tax Policy Center calculations.

Note: N/A = not available.

[a] Includes only the revenue provisions in Sanders Health Plan.

These differences cannot be fully reconciled based on the level of detail published. One difference is the assumed starting date of the Sanders proposal: the Tax Foundation uses 2015, Citizens for Tax Justice (CTJ) uses 2016, and TPC uses 2017. The later TPC starting date, in itself, should make the TPC estimate larger than the others.

A large part of the differences arise because CTJ only includes the revenue provisions in Senator Sanders's health plan, so excludes some individual and payroll tax changes as well as all corporate and excise tax changes. Likewise, the Tax Foundation excludes the excise tax changes and apparently most of the corporate tax changes.

The revenue estimates could also differ because of alternative baselines or differences in tax simulation models, such as alternative assumptions about how responsive taxpayers are to changes in tax rates. Our baseline is calibrated to match the Congressional Budget Office (2015a, 2015b) projections, and our estimates of the responsiveness of taxpayers to changes in tax rates are designed to match as closely as possible the official congressional estimates produced by the Joint Committee on Taxation.

APPENDIX D. MEASURING DISTRIBUTIONAL EFFECTS OF TAX CHANGES

Analysts use a variety of measures to assess the distributional effects of tax changes. There is no perfect measure—often a combination of measures is more informative than any single measure.[14]

The Tax Policy Center generally focuses on the percentage change in after-tax income because it measures the gain or loss of income available to households to buy goods and services, relative to the amount available before the tax change. A tax change that raises or lowers after-tax income by the same percentage for all households leaves the progressivity of the tax unchanged.

Other measures used to assess a tax change's effects include the shares of the tax cut going to different parts of the income distribution, the size of each group's cut measured in dollars, and the percentage change in tax liability. The first two measures poorly indicate the effects of a tax change because they ignore the initial distribution of taxes and thus do not assess changes in a tax's progressivity. The percentage change in tax liability can be particularly misleading because it relies too much on the initial distribution of taxes. Cutting the tax on a person making $1,000 from $50 to $10 is an 80 percent cut, whereas reducing taxes on a person making $1 million from $250,000 to $150,000 is only a 40 percent cut. But the tax savings boosts after-tax income by only about 4 percent for the poorer person, compared with a more than 13 percent increase for the higher-income person.

Table D1 shows several measures of the effects the Sanders tax proposals on households at different income levels in 2017. The tax cut would be most significant as a share of after-tax income (column 1) for those with high incomes. It's also true that for this plan, high-income people would get the bulk of the tax cuts (column 2) and that their average tax change would be larger than that for other income groups (column 3). In contrast, the tax cut would be a larger share of tax liability for households in the lowest-income quintile, simply because they have very low tax liability under current law (column 4). Finally, the share of federal tax burdens would fall for households at the bottom and at the very top of the income distribution and would rise modestly for those in the middle (column 5).

TABLE D1

Alternative Ways of Presenting Change in Distribution of Tax Burdens under the Sanders Tax Plan

By expanded cash income percentile, 2017

Expanded cash income percentile[a]	Percent change in after-tax income[b] (%)	Share of total federal tax change (%)	Average federal tax change[c]		Share of federal taxes	
			Dollars	Percent	Change (% points)	Under the proposal (%)
Lowest quintile	-1.3	0.5	165	29.1	-0.1	0.8
Second quintile	-5.1	4.0	1,625	58.3	0.2	3.6
Middle quintile	-8.5	10.3	4,692	54.6	0.3	9.8
Fourth quintile	-9.8	16.6	9,051	47.9	-0.3	17.2
Top quintile	-17.2	68.3	44,759	50.2	-0.1	68.5
All	-12.4	100.0	8,964	50.4	0.0	100.0
Addendum						
80–90	-10.3	11.6	14,809	42.0	-0.8	13.2
90–95	-9.9	7.6	19,828	35.8	-1.0	9.6
95–99	-11.6	10.8	37,801	34.8	-1.6	14.1
Top 1 percent	-33.5	38.3	525,365	68.3	3.4	31.6
Top 0.1 percent	-44.8	23.0	3,081,986	86.1	3.2	16.7

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

Notes: Number of Alternative Minimum Tax (AMT) taxpayers (millions). Baseline: 4.5; Proposal: 0. Projections are for calendar year 2017; baseline is current law (including provisions in the Protecting Americans from Tax Hikes Act of 2015 and the Consolidated Appropriations Act of 2016). The proposal includes all individual, payroll, corporate, excise, and estate tax provisions. http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm.

[a] The percentile includes both filing and nonfiling units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $23,099; 40%, $45,153; 60%, $80,760; 80%, $142,601; 90%, $209,113; 95%, $295,756;

[b] After-tax income is expanded cash income less individual income tax net of refundable credits, corporate income tax, payroll taxes (Social Security and Medicare), estate tax, and excise taxes.

[c] Average federal tax includes the individual and corporate income tax, payroll taxes for Social Security and Medicare, estate tax, and excise taxes.

APPENDIX E. DISTRIBUTION OF THE SANDERS'S PLAN WITHOUT CARBON REBATE

Although Senator Sanders clearly intends his carbon tax and rebate to be considered as a package, the rebate would technically be an outlay administered by the US Department of the Treasury. Without considering the effects of the rebate, Sanders's tax proposals would create higher burdens for lower-income households (table E1).

TABLE E1

Distribution of Federal Tax Change under Sanders Tax Plan Excluding Carbon Tax Rebate

By expanded cash income percentile, 2017

Expanded cash income percentile[a]	Percent change in after-tax income[b] (%)	Share of total federal tax change (%)	Average federal tax change ($)	Average Federal Tax Rate[c]	
				Change (percentage points)	Under the proposal (%)
Lowest quintile	-3.8	1.5	497	3.6	7.7
Second quintile	-6.5	4.8	2,049	5.9	14.0
Middle quintile	-9.3	11.0	5,162	8.1	21.5
Fourth quintile	-10.2	16.7	9,444	8.5	25.4
Top quintile	-17.2	65.8	44,770	12.8	38.4
All	-12.9	100.0	9,310	10.4	30.2
Addendum					
80–90	-10.4	11.2	14,827	8.3	28.1
90–95	-9.9	7.3	19,835	7.8	29.4
95–99	-11.7	10.4	37,803	8.7	33.8
Top 1 percent	-33.5	36.9	525,365	22.5	55.4
Top 0.1 percent	-44.8	22.2	3,081,986	29.5	63.7

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0515-4).

Notes: Number of Alternative Minimum Tax (AMT) taxpayers (millions). Baseline: 4.5; Proposal: 0. Projections are for calendar year 2017; baseline is current law (including provisions in the Protecting Americans from Tax Hikes Act of 2015 and the Consolidated Appropriations Act of 2016). The proposal includes all individual, payroll, corporate, excise, and estate tax provisions in Senator Sanders's tax plan. http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm.

[a] The percentile includes both filing and nonfiling units but excludes units that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class, but they are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm. The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2015 dollars) 20%, $23,099; 40%, $45,153; 60%, $80,760; 80%, $142,601; 90%, $209,113; 95%, $295,756; 99%, $732,323; 99.9%, $3,769,396.

[b] After-tax income is expanded cash income less individual income tax net of refundable credits, corporate income tax, payroll taxes (Social Security and Medicare), estate tax, and excise taxes.

[c] Average federal tax (includes the individual and corporate income tax, payroll taxes for Social Security and Medicare, estate tax, and excise taxes) as a percentage of average expanded cash income.

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NOTES

[1] Our estimates account for microeconomic behavioral responses, such as reduced use of tax preferences and increased capital gains realizations when marginal tax rates on income and capital gains decline. Our estimating methodology generally follows the conventional approach used by the Joint Committee on Taxation and the US Department of the Treasury to estimate revenue effects before considering the macroeconomic effects.

[2] The surtaxes for married couples filing separately would apply over income ranges half those for couples filing jointly.

[3] Note that short-term gains—on assets held less than one year—are currently taxed at ordinary rates, so their treatment would not change.

[4] Various current law provisions, such as the phaseout of itemized deductions and the AMT exemption, can raise marginal tax rates on all income, including capital gains. However, none would increase effective tax rates above 35 percent.

[5] The top rate on gains was much higher during World War I: 67 percent in 1917, 77 percent in 1918, and 73 percent in 1919–21. See data at http://www.ctj.org/pdf/regcg.pdf and http://www.taxpolicycenter.org//UploadedPDF/1001583-tax-rates-on-cap-gains.pdf.

[6] Appendix B discusses the effects of the new payroll taxes on cash wages in more detail.

[7] Senator Sanders introduced his financial transaction tax in the Inclusive Prosperity Act of 2015 (S. 1371). Burman et al. (2016a, 2016b) discuss issues related to the design of financial transaction taxes.

[8] See IPPC, *Climate Change* (2014), referred to in Marron, Toder, and Austin (2015).

[9] Although we assume an effective date of January 1, 2017, we estimate a large revenue gain in 2016 because taxpayers would realize capital gains in that year from property that they would have otherwise sold or transferred in later years in anticipation of the higher capital gains tax rates starting in 2017. Appendix C compares our revenue estimates with other published estimates.

[10] This distributional analysis (as well as most of the revenue analysis) is based on the Urban-Brookings Tax Policy Center Microsimulation Model, a brief description of which is available at http://www.taxpolicycenter.org/taxtopics/Brief-Description-of-the-Model-2015.cfm.

[11] Appendix D discusses alternative distribution measures and illustrates several alternatives for the Sanders tax proposal.

[12] See Gale and Samwick (2014) for a recent review of the literature.

[13] If the economy is operating below capacity, deficit-financed tax cuts can boost the economy in the short run by increasing aggregate demand, assuming that individuals decide to spend their tax cuts (rather than saving them or paying down debt) or that temporary investment tax cuts encourage companies to boost purchases of machines and equipment. However, deficit-financed tax cuts can overheat an economy that is at full employment, an action that can lead to inflation and, ultimately, a recession if the Federal Reserve responds to the inflationary pressures by raising interest rates. Consensus is growing that for most economic downturns (2008 being a notable exception), monetary policy is a preferable instrument for stabilization policy.

[14] For further discussion, see "Measuring the Distribution of Tax Changes" at http://taxpolicycenter.org/taxtopics/How-to-Interpret-Distibution-Tables-2013.cfm.

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