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AN UPDATED ANALYSIS OF FORMER VICE PRESIDENT BIDEN'S TAX PROPOSALS

Gordon B. Mermin, Janet Holtzblatt, Surachai Khitatrakun, Chenxi Lu, Thornton Matheson, and Jeffrey Rohaly

October 15, 2020

This brief updates estimates of the revenue and distributional effects of former vice president Joe Biden's 2020 campaign tax proposals. Biden's spending proposals would also have important distributional and economic effects, but we have not estimated their cost and distributional effects. Our modeling assumptions are based on information released by the Biden campaign and conversations with campaign staff; we detail these assumptions in appendix B. We analyze Biden's proposals as of September 28, 2020.

Biden would increase income and payroll taxes on high-income individuals and raise income taxes on corporations. He would expand tax credits for middle- and lower-income individuals and for new investments in domestic manufacturing. On net, his proposals would increase federal revenues by \$2.4 trillion over the next decade. Under his plan, the highest-income households would see substantial tax increases; tax burdens would fall for households in the bottom two income quintiles. In 2022, when Biden's temporary expansion of the child tax credit would be in effect, tax burdens would also fall for households in the third and fourth income quintiles.

An earlier version of this analysis was released on March 5, 2020 (Mermin et al. 2020). Our revised version incorporates changes Biden's campaign has made to its plan and incorporates revised economic projections. Our new revenue estimate is significantly lower than the March estimate for a number of reasons: several tax credit provisions the campaign has proposed since our initial analysis, our assumption that implementation of most proposals will be delayed until 2022, changes to previously

proposed policies that are intended to hold harmless tax filers with incomes below \$400,000, a revised economic forecast, and other technical changes.

MAJOR ELEMENTS OF THE PROPOSALS

Former vice president Joe Biden has proposed increases in the income and payroll taxes of high-income individuals and higher income taxes on corporations. His plan would also expand tax credits for middle- and lower-income individuals and for new investments in domestic manufacturing. Key elements of his plan are as follows.

Individual Income, Payroll, and Estate Taxes

High-income taxpayers would face increased income and payroll taxes. Biden's plan would roll back income tax reductions from the Tax Cuts and Jobs Act of 2017 (TCJA) for taxpayers with incomes above \$400,000. It would also limit the value of itemized deductions to 28 percent for taxpayers with incomes above \$400,000. His plan would tax capital gains and dividends at the same rate as ordinary income for taxpayers with incomes above \$1 million and tax unrealized capital gains at death. Biden also would subject earnings over \$400,000 to the Social Security payroll tax. Further, his plan would lower the estate tax exemption to \$3.5 million (\$7 million for married couples) and increase the estate tax rate to 45 percent.

Middle- and lower-income taxpayers would benefit from expanded and new tax credits. Biden's plan would temporarily increase the child tax credit and make it fully refundable and permanently boost the child and dependent care tax credit and make it fully refundable as well. His plan would provide new tax credits for first-time home buyers, family caregivers, and low-income renters. His plan would make tax incentives for retirement saving more progressive by replacing a deduction (or income exemption) with a refundable tax credit for contributions to traditional individual retirement accounts (IRAs) and defined-contribution pension plans.

Business Taxes

Biden's plan would increase the top corporate income tax rate from 21 percent to 28 percent and impose a 21 percent country-by-country foreign minimum tax as well as a 15 percent minimum tax on companies' global book income. His plan would also establish a financial risk fee on liabilities held by financial institutions with more than \$50 billion in assets. The tax increases on businesses would be partially offset by several new tax credits, most significantly a 10 percent credit for new investments in domestic manufacturing.

Effective Date

We assume that the effective date for most provisions in the Biden tax plan would be January 1, 2022, one year later than we assumed in March.¹ This delay reflects the uncertain legislative environment caused by the ongoing COVID-19 pandemic and related economic disruptions.

¹ We make an exception to the effective date for one provision: we assume that the temporary expansion of the child tax credit would take effect on January 1, 2021, and expire after December 31, 2022.

New Provisions

The largest Biden tax proposals that are reflected in this analysis but were not included in our March report are as follows:

- Temporarily expand and make fully refundable the child tax credit.
- Provide credits for new investments in domestic manufacturing.
- Provide a refundable first-time home buyer's credit.
- Expand and make refundable the child and dependent care tax credit.
- Provide a refundable low-income renter's credit.
- Increase the estate tax.
- Establish a financial risk fee on liabilities held by large financial institutions.

Table A1 provides a complete list of new provisions.

Moreover, Biden has clarified that he wants any tax increases to exempt all individual taxpayers with income under \$400,000. Where possible, we have modified proposals to be consistent with that limitation. This has reduced our estimates of the revenue gain from the following proposals:

- Apply Social Security payroll taxes to earnings above \$400,000²
- Limit the value of itemized deductions to 28 percent
- Replace deductions (or income exemptions) for retirement contributions with a refundable credit
- Tax unrealized capital gains at death

Policy Provisions outside the Scope of This Brief

Biden's spending proposals would have important distributional and economic effects. Those proposals include changing Social Security benefits,³ providing federal financial aid for postsecondary students and forgiving some student loan debt, expanding premium subsidies under the Affordable Care Act (ACA), providing federal housing assistance, and creating a public insurance option for ACA Marketplaces. Many of these spending proposals would benefit lower- and middle-income households. However, we do not estimate the costs or the distributional effects of those provisions, so our estimates show the effects of Biden's tax proposals only, not his entire budgetary plan.

[Appendix B](#) provides a detailed description of Biden's tax plan and our assumptions.

² The campaign has clarified that Social Security taxes do not apply to earnings in excess of \$400,000 if losses or adjustments reduce adjusted gross income below \$400,000.

³ See Smith, Johnson, and Favreault (2020) for an analysis of Biden's proposed changes to Social Security benefits.

REVENUE EFFECTS

We estimate Biden’s tax proposals would increase federal revenues relative to current law by about \$2.4 trillion between 2021 and 2030, or 0.9 percent of gross domestic product over that period (table 1).⁴ ⁵ About 40 percent of the revenue gains would come from higher taxes on high-income households and high-value estates, and about 60 percent would come from higher taxes on businesses, especially corporations. The largest revenue raisers over the 10-year budget window are his following policies:

- Apply Social Security payroll taxes to earnings above \$400,000 (raising \$740 billion)
- Increase the corporate income tax rate from 21 to 28 percent (\$730 billion)
- Increase minimum taxes on foreign-source income of US multinational corporations (\$710 billion)
- Increase taxes on capital gains and dividends for taxpayers with incomes above \$1 million (\$370 billion)
- Repeal TCJA individual income tax cuts for taxpayers with incomes above \$400,000 (\$310 billion)⁶
- Limit the value of itemized deductions for taxpayers with incomes above \$400,000 (\$220 billion)
- Increase the estate tax (\$220 billion)

The additional revenue would be partially offset over the 10-year budget window by approximately \$1.2 trillion in additional tax credits. The largest tax credit provisions are the following:

- Temporarily expand and make fully refundable the child tax credit (losing \$240 billion)
- Provide credits for new investments in domestic manufacturing (\$230 billion)
- Provide a refundable first-time home buyer’s credit (\$210 billion)
- Replace deductions (or income exemptions) for retirement contributions with a refundable credit (\$150 billion)
- Expand and make fully refundable the child and dependent care tax credit (\$110 billion)

Table A1 provides detailed revenue estimates for all of Biden’s plan.

⁴ Our revenue estimates incorporate microdynamic behavioral responses. We generally assume the elasticity of taxable income with respect to the net of tax rate rises with income and equals 0.25 for those in the top 0.1 percent of the income distribution. Because the TCJA temporarily expanded the individual income tax base, we reduce our elasticities by one-fifth until the TCJA’s individual income tax provisions expire after 2025. Under current law, we assume the elasticity of long-term capital gains realizations rises with the tax rate and equals -0.7 at a tax rate of 20 percent. Because Biden’s plan taxes unrealized capital gains at death, which greatly reduces the incentive to defer realizations of gains, we assume a lower elasticity that equals -0.4 at a 20 percent rate.

⁵ Biden’s proposals would increase federal revenues as a percent of gross domestic product over the 10-year period to 18.4, which is lower than the average for the late 1990s but higher than the historical average.

⁶ Provision includes restoring pre-TCJA rates, restoring the Pease limitation on itemized deductions, and phasing out the qualified business income deduction above \$400,000 of income.

TABLE 1

Estimated Effects of Biden's Tax Plan on Tax Revenues

Fiscal years 2021 to 2040, billions of dollars



	Fiscal Year											2021–30	2031–40
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030			
Individual income and payroll taxes	-37.1	-48.7	20.8	132.9	146.4	107.8	91.8	103.2	114.6	126.4	758.1	1,978.1	
Business taxes	0.0	91.2	137.7	142.9	147.5	157.9	168.0	173.2	178.1	182.7	1,379.1	2,188.7	
Estate and gift or wealth taxes	0.0	3.2	14.1	18.3	24.9	31.2	30.2	31.6	32.2	32.6	218.2	516.7	
Consumption taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total revenue effect of all provisions	-37.1	45.6	172.7	294.1	318.8	296.8	290.0	308.0	324.8	341.7	2,355.4	4,683.6	
Total revenue as a % of gross domestic product	-0.2	0.2	0.8	1.2	1.3	1.1	1.1	1.1	1.1	1.1	0.9	1.2	

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1) and Tax Policy Center estimates.

Notes: Baseline is current law. Proposal includes all assumptions detailed in the appendix.

Net revenue gain under Biden's plan generally grows throughout the 10-year budget window except in 2026, when it declines by \$22 billion, and in 2027, when it declines by \$7 billion. These declines occur because certain provisions of the TCJA are set to expire or change. For example, the TCJA's individual income tax cuts expire at the end of calendar year 2025, so Biden's proposal to repeal them for high-income taxpayers raises less revenue in fiscal year 2026 and no additional revenue in later years.⁷

Biden's plan would continue to raise revenue over the longer run. His plan increases federal revenues by 1.2 percent of gross domestic product between 2031 and 2040, 0.3 percentage points more than over the first 10 years.

The net revenue gain presented here for Biden's plan is substantially smaller than what we estimated in March. Our March analysis found that the plan would increase revenues by approximately \$4 trillion between 2021 and 2030 as opposed to \$2.4 trillion in this analysis. About 33 percent of the difference is caused by Biden's newly proposed provisions and about 20 percent is caused by our assumption that previously proposed policies will be not be implemented until 2022. About 17 percent of the difference is caused by our exclusion of certain provisions that were included in the March analysis that we were unable to adequately model as the campaign now proposes them.⁸ The remaining 30 percent is caused by the revised economic forecast, changes to previously proposed policies to hold harmless tax filers with incomes below \$400,000, and changes in modeling assumptions.⁹

⁷ The proposal to repeal TCJA's individual income tax provisions for high-income taxpayers would still raise revenue in fiscal year 2026 because some revenues coming into the US Department of the Treasury reflect income tax liabilities from calendar year 2025.

⁸ The March analysis included a provision to eliminate certain tax preferences for the real estate industry. The campaign has since indicated these proposals would only apply to individuals with incomes above \$400,000. We are unable to adequately model this restriction on these provisions because pass-through businesses are responsible for much real estate investment and those businesses allocate income and expense items to the individual owners. We are not able to determine which of those owners would have income above or below \$400,000.

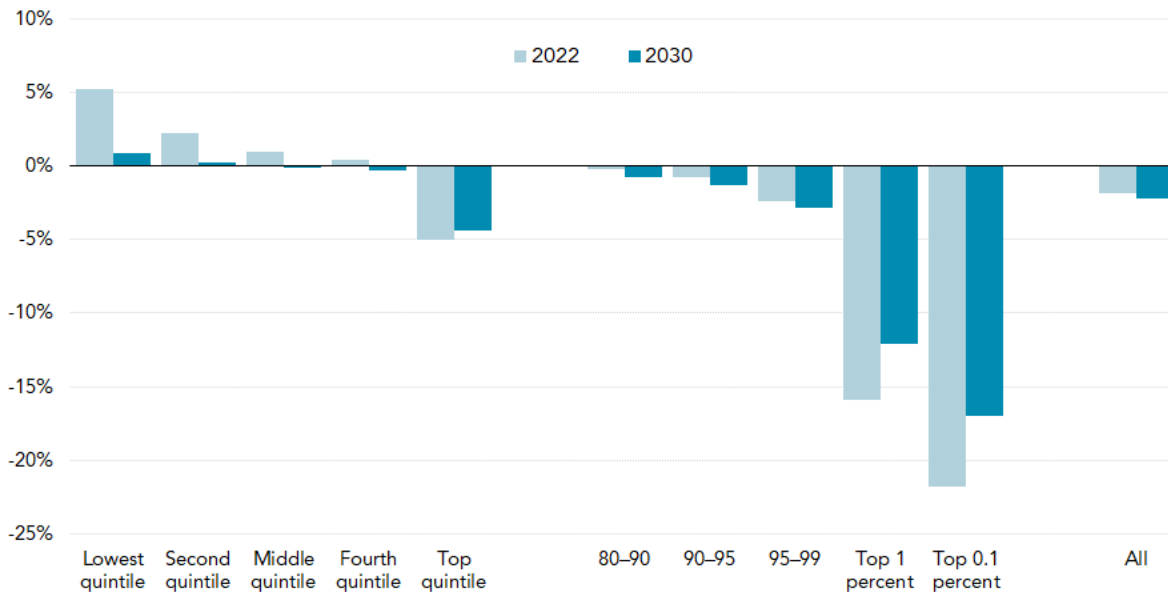
⁹ This analysis incorporates September 2020 economic projections from Congressional Budget Office (2020); among other effects on our analysis, those projections lower our forecasts of wages and corporate profits.

DISTRIBUTIONAL EFFECTS

Biden’s proposals would have different effects on the distribution of tax burdens in the short and longer run, which we illustrate with results for the 2022 and 2030 tax changes (figure 1).

FIGURE 1

Percent Change in After-tax Income under Biden's Tax Plan By expanded cash income percentile, 2022 and 2030



Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Note: Baseline is current law.

In 2022, when the temporary expansion of the child tax credit will be in effect, the proposals would on average increase tax burdens for households in the top income quintile (especially the highest-income households) and reduce taxes for the bottom four income quintiles, particularly the lowest income quintile (table 2). The plan would raise tax burdens on households in the top 1 percent of the income distribution (those with income more than \$788,000) by an average of about \$266,000, or 15.9 percent of current-law after-tax income. By contrast, taxpayers in the middle income quintile (those with income between about \$50,000 and \$89,000) would receive an average tax cut of \$620, or 1.0 percent of after-tax income. Taxpayers in the bottom quintile (those with income less than about \$25,000) would receive an average tax cut of \$750, or 5.2 percent of after-tax income.

TABLE 2

Distribution of Federal Tax Change under Biden's Tax Plan By expanded cash income percentile, 2022



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 (% points)	Under the proposal (%)
Lowest quintile	5.2	-12.8	-750	-5.0	-2.2
Second quintile	2.2	-11.7	-790	-2.0	5.2
Middle quintile	1.0	-8.4	-620	-0.9	11.6
Fourth quintile	0.4	-4.7	-420	-0.3	15.9
Top quintile	-5.0	137.0	14,700	3.8	27.8
All	-1.8	100.0	1,510	1.5	20.0
Addendum					
80–90	-0.2	2.0	410	0.2	19.7
90–95	-0.8	4.3	1,880	0.6	22.2
95–99	-2.4	16.0	8,970	1.8	25.6
Top 1 percent	-15.9	114.8	265,640	11.1	41.2
Top 0.1 percent	-21.8	70.6	1,595,110	15.1	45.8

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Notes: Estimates are for calendar year. Baseline is current law. Proposal includes all assumptions detailed in the appendix. Distributional estimates do not include the impact of proposals to increase tax compliance.

(a) Percentiles include both filing and nonfiling units but exclude those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. 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 (in 2019 dollars) are: 20% \$24,800; 40% \$49,800; 60% \$88,500; 80% \$159,800; 90% \$234,300; 95% \$331,500; 99% \$788,100; 99.9% \$3,472,100. For a description of expanded cash income, see <http://www.taxpolicycenter.org/TaxModel/income.cfm>.

(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 (including individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

As shown in figure 1, in 2030, the proposal would continue to increase tax burdens most on the highest-income households (though by a smaller share of after-tax income than in 2022) and continue to reduce tax burdens for households in the bottom two income quintiles (though by less than in 2022). Tax burdens would increase slightly for taxpayers in the middle and fourth income quintiles, largely reflecting increased corporate income tax burdens. Biden's proposal to expand the child tax credit and make it fully refundable expires in 2023, so that proposal does not reduce taxes for middle- and lower-income households in 2030 as it does in 2022. Similarly, the TCJA tax cuts for individuals expire in 2026, so Biden's proposal to repeal them for tax filers with incomes above \$400,000 does not increase their tax burden in 2030. In 2030, Biden's plan would raise tax burdens for households in the top 1 percent of the income distribution by an average of about \$265,000, or 12.1 percent of after-tax income (table 3). By contrast, taxpayers in the middle income quintile would see an average increase in their tax burden of \$70, or 0.1 percent of after-tax income. Taxpayers in the bottom quintile would receive an average burden reduction of \$180, or 0.9 percent of after-tax income. In total, by 2030, almost 99 percent of the tax burden increase would be borne by taxpayers in the top quintile of the income distribution.¹⁰

¹⁰ This analysis excludes Biden's expansion of the Affordable Care Act's premium tax credit, which would reduce tax burdens for households in the first three income quintiles. We do not include the premium tax credit in our tax baseline because of its similarity to a spending program.

TABLE 3

Distribution of Federal Tax Change under Biden's Tax Plan By expanded cash income percentile, 2030



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 (% points)	Under the proposal (%)
Lowest quintile	0.9	-1.8	-180	-0.9	2.5
Second quintile	0.2	-0.7	-80	-0.1	8.5
Middle quintile	-0.1	0.6	70	0.1	14.1
Fourth quintile	-0.3	2.9	400	0.2	18.0
Top quintile	-4.4	98.6	16,400	3.3	28.9
All	-2.2	100.0	2,370	1.7	21.8
Addendum					
80–90	-0.8	5.0	1,600	0.6	21.3
90–95	-1.3	5.6	3,770	1.0	23.7
95–99	-2.8	15.3	13,530	2.1	28.7
Top 1 percent	-12.1	72.7	265,280	8.3	39.8
Top 0.1 percent	-17.0	47.1	1,671,530	11.7	43.1

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Notes: Estimates are for calendar year. Baseline is current law. Proposal includes all assumptions detailed in the appendix. Distributional estimates do not include the impact of proposals to increase tax compliance.

(a) Percentiles include both filing and nonfiling units but exclude those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. 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 (in 2019 dollars) are: 20% \$28,000; 40% \$55,700; 60% \$97,700; 80% \$171,500; 90% \$248,900; 95% \$360,600; 99% \$858,500; 99.9% \$3,987,400. For a description of expanded cash income, see <http://www.taxpolicycenter.org/TaxModel/income.cfm>.

(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 (including individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

Nearly all of the increases in tax burdens for the middle and fourth income quintiles—and a substantial share of the increased burden for the top quintile in 2030—are driven by the indirect effects of higher corporate income taxes. Our model assumes that in the long run, 60 percent of the corporate income tax is borne by shareholders, 20 percent is borne by all capital owners, and 20 percent is borne by labor.¹¹ The Joint Committee on Taxation, the Congressional Budget Office, and the US Department of the Treasury make similar assumptions. For middle-income households in 2030, the reduction in wages and investment income associated with the increased corporate income taxes would, on average, more than offset the effects of Biden's expanded tax credits. To illustrate the difference, in appendix C we show the distribution of tax changes excluding the corporate income tax.

¹¹ For further discussion, see Nunns (2012).

APPENDIX A. DETAILED REVENUE ESTIMATES

TABLE A1

Estimated Effect of Biden Tax Plan on Tax Revenues
Fiscal years 2021 to 2040, billions of dollars



Provision	New since March	Fiscal Year										2021-30	2031-40
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Individual income and payroll taxes													
Restore pre-TCJA rates above \$400,000 of income		0.0	17.7	26.5	28.4	30.0	9.1	0.0	0.0	0.0	0.0	111.8	0.0
Restore limitation on itemized deductions above \$400,000 of income		0.0	7.3	12.4	12.8	13.4	5.4	0.0	0.0	0.0	0.0	51.2	0.0
Phase out qualified business income deduction above \$400,000 of income		0.0	20.6	33.5	36.4	38.9	13.9	0.0	0.0	0.0	0.0	143.4	0.0
Tax capital gains and dividends at same rate as ordinary income above \$1 million and tax unrealized capital gains at death		0.0	5.0	33.4	47.0	50.6	44.7	42.8	46.2	49.5	53.4	372.7	778.5
Limit tax benefit of itemized deductions to 28 percent of value above \$400,000 of income		0.0	7.3	12.2	12.4	12.7	24.8	34.2	36.9	40.0	42.9	223.5	555.9
Extend EITC to childless workers age 65 and older		0.0	0.0	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-3.8	-4.9
Provide a tax credit of up to \$5,000 for family caregivers of individuals with physical and cognitive needs		0.0	-1.7	-8.6	-8.9	-9.2	-9.8	-10.9	-11.4	-11.7	-12.1	-84.2	-146.7
Increase maximum child and dependent care tax credit to \$4,000 (\$8,000 for two or more children) and make it refundable	X	0.0	-2.4	-12.0	-12.4	-12.7	-13.2	-14.6	-14.9	-15.2	-15.5	-112.8	-172.2
Temporarily increase child tax credit to \$3,000 (\$3,600 for children under age 6) and make it fully refundable (effective 01/01/21; sunset 12/31/22)	X	-33.3	-121.0	-88.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-242.3	0.0
Provide a \$15,000 refundable tax credit for first-time home buyers	X	0.0	-5.0	-25.2	-25.3	-25.3	-25.3	-25.4	-25.4	-25.5	-25.6	-208.1	-242.0
Apply 12.4 percent Old-Age, Survivors, and Disability Insurance payroll tax to earnings above \$400,000		0.0	47.6	66.8	71.9	76.6	82.7	88.8	95.2	101.7	108.4	739.8	1,502.0
Establish automatic IRAs and a small-business start-up credit for offering retirement plans		0.0	-0.7	-0.9	-1.0	-1.1	-1.4	-1.6	-1.9	-2.1	-2.4	-13.1	-47.2
Replace deductibility of worker IRA/DC pension contributions with 26% refundable tax credit, holding harmless individuals with less than \$400,000 of income		0.0	-14.9	-19.8	-19.8	-19.9	-16.3	-14.8	-14.8	-15.1	-15.4	-150.9	-119.0
Exempt forgiven student loans from taxable income		0.0	0.0	0.0	-0.1	-0.3	-0.5	-0.6	-0.7	-0.9	-0.9	-4.1	-58.9
Reinstate tax credits for residential energy efficiency		0.0	-1.6	-2.6	-2.8	-2.9	-3.1	-3.2	-3.4	-3.5	-3.7	-26.8	-44.5
Restore full electric-vehicle tax credit and target it to middle-income consumers		0.0	-1.5	-1.5	-1.8	-2.0	-2.3	-2.5	-2.8	-2.9	-3.3	-20.6	-50.1
Provide refundable low-income renter's credit	X	-3.8	-5.1	-5.2	-5.3	-5.4	-5.5	-5.6	-5.7	-5.8	-5.9	-53.3	-50.8
Increase tax compliance of high-income earners ¹	X	0.0	-0.3	0.2	1.5	3.5	5.0	5.8	6.3	6.7	7.0	35.7	78.1
Total for individual income and payroll taxes		-37.1	-48.7	20.8	132.9	146.4	107.8	91.8	103.2	114.6	126.4	758.1	1,978.1
Business taxes													
Increase corporate income tax rate to 28%		0.0	51.2	68.7	71.5	74.3	82.9	90.7	93.7	96.1	98.1	727.3	1,212.9
Replace GILTI tax with country-by-country minimum tax on profits earned by foreign subsidiaries of US firms		0.0	44.1	74.7	76.8	79.0	81.3	83.8	86.2	88.5	90.8	705.2	1,040.9
Minimum tax on global book income		0.0	6.4	11.0	11.4	11.9	12.4	13.0	13.6	14.1	14.7	108.5	179.8
Tighten anti-inversion rules, making it more difficult for US multinational corporations to avoid US taxes	X	0.0	0.1	0.6	1.0	1.6	2.2	2.9	3.7	4.5	5.4	21.9	85.8
Eliminate tax preferences for fossil fuels		0.0	1.8	3.3	3.7	3.6	3.4	3.0	2.4	2.1	2.0	25.3	7.7
Establish a financial risk fee on certain liabilities held by financial institutions with more than \$50 billion in assets	X	0.0	9.5	9.5	9.4	9.4	9.4	9.4	9.3	9.3	9.2	84.4	87.2
End tax deduction for direct-to-consumer prescription drug advertising		0.0	0.8	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.8	13.4	22.3
Tighten the rules for classifying independent contractors		0.0	0.2	0.7	1.2	1.4	1.5	1.5	1.5	1.6	1.6	11.1	18.0
Provide a new manufacturing communities tax credit		0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-1.1	-2.2
Expand tax deductions for emissions-reducing investments in commercial buildings	X	0.0	-0.2	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-0.5	-4.7	-3.5
Enhance tax incentives for carbon capture, use, and storage		0.0	-0.2	-0.4	-0.6	-0.8	-1.0	-1.0	-0.9	-0.8	-0.7	-6.4	-6.2
Develop a low-carbon manufacturing sector by providing tax credits for deploying low-carbon technologies	X	0.0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-2.2	-1.8
Expand the low-income housing tax credit by \$10 billion over 10 years	X	0.0	-0.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-8.8	-1.3
Provide a 10 percent tax credit for new investments in domestic manufacturing	X	0.0	-16.6	-22.9	-23.8	-24.9	-26.0	-27.1	-28.3	-29.4	-30.6	-229.7	-375.0
Expand the new markets tax credit	X	0.0	-2.9	-4.1	-4.4	-4.7	-4.9	-5.0	-5.0	-5.0	-5.0	-41.1	-50.0
Reinstate the renewable energy investment tax credit		0.0	-2.3	-3.0	-2.9	-2.8	-2.7	-2.7	-2.6	-2.6	-2.6	-24.1	-25.9
Total for business taxes		0.0	91.2	137.7	142.9	147.5	157.9	168.0	173.2	178.1	182.7	1,379.1	2,188.7
Estate and gift or wealth taxes													
Restore the estate, gift and generation-skipping transfer tax parameters in effect in 2009	X	0.0	3.2	14.1	18.3	24.9	31.2	30.2	31.6	32.2	32.6	218.2	516.7
Total for estate and gift or wealth tax revenues		0.0	3.2	14.1	18.3	24.9	31.2	30.2	31.6	32.2	32.6	218.2	516.7
Total revenue effect of all provisions													
Total revenue effect of plan		-37.1	45.6	172.7	294.1	318.8	296.8	290.0	308.0	324.8	341.7	2,355.4	4,683.6
As a percentage of gross domestic product		-0.2	0.2	0.8	1.2	1.3	1.1	1.1	1.1	1.1	1.1	0.9	1.2

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 09-20-1) and Tax Policy Center estimates.

Note: DC = defined-contribution; EITC = the earned income tax credit; IRA = individual retirement account; GILTI = global intangible low-taxed income; TCJA = the Tax Cuts and Jobs Act of 2017.

¹ The estimate shows the net impact of increasing the Internal Revenue Service's budget for enforcement activities, such as audits. The activities are estimated to generate \$54 billion in additional revenue from 2021 through 2030 and cost approximately \$18 billion, resulting in an estimated net savings of \$36 billion. From 2031 through 2040, increasing the agency's enforcement budget by \$30 billion would raise \$108 billion in revenues, for a net savings of \$78 billion.

APPENDIX B. BIDEN'S TAX PLAN AND ASSUMPTIONS

Because candidates' proposals rarely include all the details needed to model them accurately, we ask campaign staff to clarify provisions or specify more details. We sent questions and our assumptions, which were based on Biden's statements and materials posted on the campaign website, to his campaign. Representatives of the campaign reviewed our assumptions and confirmed that most were consistent with Biden's proposals. In a few instances, the campaign provided us with more information about the proposal, 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.

Biden's Tax Provisions

Unless otherwise noted, we assume Biden's tax proposals would be effective as of January 1, 2022, and that he would allow all temporary tax provisions to expire as scheduled (e.g., the TCJA's individual income tax changes will expire after 2025). In our March analysis, we assumed proposals would be effective as of January 1, 2021, but we decided to delay the effective date for this analysis given the uncertain legislative environment caused by the COVID-19 pandemic and its resultant economic conditions. These provisions are modeled as of September 28, 2020.

INDIVIDUAL INCOME TAXES

- Repeal the TCJA's individual income tax cuts for taxpayers with incomes above \$400,000. We assume
 - individual income tax rates revert to their pre-TCJA values for taxable incomes above the threshold,
 - itemized deductions begin to phase out (as per the Pease limitation) at adjusted gross income (AGI) over the threshold,¹²
 - the qualified business income deduction begins to phase out at taxable income (without regard to the deduction) above the threshold, and
 - the threshold is indexed for inflation after 2022 and equals \$400,000 for married couples filing jointly and unmarried individuals and \$200,000 for married individuals filing separate returns.
- Cap itemized deductions at 28 percent of value for taxpayers with incomes above \$400,000. We assume
 - the proposal applies only to itemized deductions rather than also applying to income exclusions such as the exclusions for employer-provided health and retirement benefits;
 - the threshold is indexed for inflation after 2022 and equals \$400,000 of AGI for married couples filing jointly and unmarried individuals and \$200,000 for married individuals filing a separate return; and
 - to avoid a "notch," the limitation phases in over the next \$100,000 of AGI beyond the threshold (e.g., it phases in between \$400,000 and \$500,000 for married couples filing jointly and unmarried individuals in 2022).
- Tax capital gains and dividends at the same rate as ordinary income for taxpayers with over \$1 million in income. We assume the proposal adds a fourth bracket for long-term capital gains and qualifying dividends (resulting in brackets of 0 percent, 15 percent, 20 percent, and 39.6 percent).
- Tax unrealized capital gains at death for taxpayers with incomes above \$400,000. We assume
 - the proposal's exemption and treatment of gifts and transfers to spouses and charity is the same as detailed by the US Department of the Treasury (2016, 155–57); and
 - the tax phases in as modified adjusted gross income from the previous year plus constructive realizations exceeds \$400,000, indexed for inflation after 2022.
- Expand the child and dependent care tax credit to cover up to 50 percent of qualifying expenses; raise the maximum eligible expenses to \$8,000 for one child and \$16,000 for two or more children; extend eligibility for the

¹² We assume the \$10,000 limit on the state and local tax deduction expires as scheduled after 2025.

maximum credit to taxpayers with income under \$125,000; and make the credit refundable. We assume the credit rate phases down by 1 percentage point for every \$2,000 (or fraction thereof) by which AGI exceeds \$125,000, reaching a minimum rate of 20 percent at AGI greater than \$183,000.

- Increase the child tax credit to \$3,000 per child; allow an additional \$600 for eligible children under age 6; allow the credit for eligible 17-year-old children; and make the credit fully refundable. We assume the proposal is effective as of January 1, 2021, and sunsets after December 31, 2022.
- Create a refundable tax credit of up to \$15,000 for down payments available to first-time home buyers that is payable when taxpayers purchase their home. We assume
 - the credit equals 20 percent of the home's purchase price up to a maximum of \$15,000, and
 - the credit phases out between \$270,700 and \$290,700 of AGI for married couples filing joint returns and between \$150,400 and \$170,400 for all other filers (the same phase-out range as for the temporary 2010 home-buyer's credit but adjusted to reflect inflation to 2022).
- Create a refundable renter's tax credit equal to the difference between 30 percent of recipients' income and the lower of their rent or the Small Area Fair Market Rent; the total amount of credits across all recipients is capped at \$5 billion a year. We assume the proposal is the same as proposed by Sard and Fischer (2013) which is limited to recipients with incomes below 150 percent of the federal poverty level.
- Increase tax preferences for middle-income taxpayers' contributions to 401(k) plans and IRAs. We assume
 - the proposal replaces the deduction for worker contributions to traditional IRAs and the income exemption for contributions to defined-contribution pensions with a refundable tax credit as proposed by Gale, John, and Smith (2012);
 - the credit rate is 26 percent, which is roughly revenue neutral over the long run before considering any "hold-harmless" provisions; and
 - the proposal holds harmless taxpayers with incomes below \$400,000.
- Provide automatic enrollment in IRAs for workers who do not have a pension or 401(k)-type plan. Offer tax credits to small businesses to offset the costs of workplace retirement plans. We assume the proposal is the same as detailed by the US Department of the Treasury (2016, 134–38).
- Restore the full electric vehicle tax credit, target it to middle-income consumers, and prioritize the purchase of American-made vehicles. We assume the proposal
 - makes the electric vehicle tax credit permanent,
 - repeals the per manufacturer cap, and
 - phases out the credit for taxpayers with income above \$400,000.
- Provide a tax credit of up to \$5,000 for family caregivers of individuals with physical and cognitive needs. We assume the credit is the same as in the Credit for Caring Act of 2019 (except with a \$5,000 maximum).¹³
- Extend the earned income tax credit to workers age 65 and older without qualifying children.
- Exclude student loan forgiveness from taxable income.
- Reinstate tax credits for residential energy efficiency.
- Increase tax compliance of high-income earners. We assume
 - the proposal would increase the Internal Revenue Service budget for enforcement to its 2010 level (in inflation-adjusted dollars),
 - funding would be increased incrementally over a three-year period before reaching the 2010 level, and

¹³ See S.1443, "Caring for Credit Act of 2019," 116th Cong. (2019).

- funding would be dedicated to field audits, which primarily target higher-income taxpayers and corporations.

PAYROLL TAXES

- Apply the 12.4 percent Old-Age, Survivors, and Disability Insurance tax to earnings above \$400,000. We assume
 - earnings above the current-law maximum taxable earnings and below \$400,000 are not subject to the tax;
 - the \$400,000 threshold is not indexed for inflation; and
 - to ensure that taxpayers with AGI below \$400,000 are not affected by this proposal and to avoid a “notch,” the tax will be applied to the lesser of AGI in excess of \$400,000 or earnings in excess of \$400,000.

ESTATE TAXES

- Restore the nominal estate, gift and generation-skipping transfer tax parameters in effect in 2009. We assume
 - the proposal is the same as detailed by the US Department of the Treasury (2016, 177–78);
 - the top tax rate would be 45 percent; and
 - the exclusion amount would be \$3.5 million for estate and generation-skipping transfer taxes, would be \$1 million for gift taxes, and would not be indexed for inflation.

BUSINESS TAXES

- Increase the top corporate income tax rate to 28 percent. We assume a flat 28 percent corporate income tax rate and no change in the current-law depreciation regime.
- Replace the minimum tax on global intangible low-taxed income with a 21 percent country-by-country minimum tax on profits earned by foreign subsidiaries of US firms. We assume
 - companies can pool profits and losses only within each foreign country,
 - companies can use up to 100 percent of their foreign tax credits per country but may not apply excess credits to tax liability associated with earnings from any other country,
 - the 10 percent of qualified business asset investment exclusion will be eliminated, and
 - after-tax profits may be repatriated to the US parent company without further US tax.
- Impose a 15 percent minimum tax on companies’ global book income. We assume
 - the tax is structured as an alternative minimum tax,
 - both domestic and foreign income taxes (including the US minimum tax on foreign-source income) are credited, and
 - companies can carry forward book losses from unprofitable years.
- Provide a 10 percent “Made in America” advanceable tax credit for domestic investment that creates US manufacturing jobs. We assume
 - the credit is available for qualified manufacturing investment,
 - the credit does not reduce the depreciable basis of qualifying assets,
 - qualifying investments per company or in aggregate are not capped, and
 - the credit is available for domestic investment in machinery and equipment by both US- and foreign-owned manufacturers.
- Provide a new manufacturing communities tax credit that targets communities that experience mass layoffs or the closure of a major government institution and fund the credit for five years. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 42–43) but funded for five years rather than three.

- Expand tax deductions for energy technology upgrades, smart metering systems, and other emissions-reducing investments in commercial buildings. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 50–51).
- Eliminate tax preferences for fossil fuels. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 89–96).
- Enhance tax incentives for carbon capture, use, and storage. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 52–53).
- Tighten the rules for classifying independent contractors by increasing penalties for misclassification. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 205–09).
- End pharmaceutical companies’ tax deduction for advertisement spending. We assume the proposal eliminates all deductions for direct-to-consumer prescription drug advertising, as in the End Taxpayer Subsidies for Drug Ads Act.¹⁴
- Reinststate the renewable energy investment tax credit.
- Expand the new markets tax credit to permanently provide \$5 billion in support each year.
- Expand the low-income housing tax credit by \$10 billion over 10 years. We assume the proposal increases the total amount of allocated tax credits by \$1 billion a year for 10 years.
- Tighten anti-inversion rules, making it more difficult for US multinational corporations to avoid US taxes through certain types of mergers with foreign corporations. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 27–28).
- Establish a financial risk fee on certain liabilities held by financial institutions with more than \$50 billion in assets. We assume this proposal is the same as detailed by the Congressional Budget Office (2018, 295–97).
- Develop a low-carbon manufacturing sector by providing tax credits for businesses to upgrade equipment and processes, investing in factory construction and expansion, and deploying low-carbon technologies. We assume this proposal is the same as detailed by the US Department of the Treasury (2016, 54–55).

EXCLUDED TAX PROVISIONS

We exclude the following provisions from our analysis because we lack some clarifying details or data necessary to estimate their effects. We also exclude tax provisions related to health coverage because our analysis does not include the distributional impact of changes in government health benefits.

- Increase tax benefits for older Americans who purchase long-term care insurance using their retirement savings.
- Allow caregivers to make tax-preferred contributions to retirement plans to make up for periods they are not in the formal labor market.
- Expand eligibility for hardship withdrawals from retirement savings to include survivors of domestic abuse and sexual assault; allow survivors to take distributions from retirement savings without penalties.
- Expand the ACA’s premium tax credit.
- Institute a refundable tax credit to reimburse businesses and nonprofits for the extra costs of providing employees with full health benefits during periods that their work hours are reduced.
- Create a tax credit to cover 50 percent of up to \$1 million of a business’s costs of constructing a child care center at a workplace for their employees.

¹⁴ See S.2478, “End Taxpayer Subsidies for Drug Ads Act,” 115th Cong., (2018).

- Establish incentives for investors to partner with nonprofits and community organizations to create jobs and improve households' financial circumstances in opportunity zones.
- Eliminate certain tax preferences for real estate investors with over \$400,000 of income.
- Establish a clawback provision to require companies to repay tax benefits if they shift US jobs overseas.
- Establish a tax credit to help finance the costs of rehabilitating properties in distressed neighborhoods.
- Create new incentives, including tax credits, to encourage domestic production of designated critical products, such as semiconductors.
- Create a 10 percent "offshoring penalty" surtax on profits of any production by a United States company overseas for sales back to the United States; under this proposal, companies will pay a 30.8 percent tax rate on any such profits.
- Impose a carbon adjustment fee against countries that do not meet certain climate and environment standards.
- Temporarily waive experience rating used for the computation of unemployment insurance taxes when companies use short-time compensation.
- Allow businesses to deduct the cost of emergency paid sick leave against expected tax payments, or to seek reimbursement for paid sick leave, during the novel coronavirus outbreak.

APPENDIX C. DISTRIBUTION OF TAX CHANGES DIRECTLY AFFECTING INDIVIDUALS

The Tax Policy Center's standard distribution tables show how federal taxes that directly affect individuals, such as income, payroll, and estate taxes, and those that indirectly affect them, such as corporate income taxes, affect households. Our model assumes that in the long run, 60 percent of the corporate income tax is borne by shareholders, 20 percent is borne by capital owners, and 20 percent is borne by labor. Consequently, although the burden of increases in corporate income taxes mostly falls on high-income households, the estimates in tables 2 and 3 also show increased burdens on households across the income distribution through lower wages and reduced investment income. Although high-income households own the vast majority of corporate stock and other capital assets, middle-income households own some (largely through retirement plans).

Tables A2 and A3 show the distributional impact of Biden's proposals that directly affect households through changes in income, payroll, and estate taxes only; changes in corporate income taxes are excluded. These tables show a similar distributional story to tables 2 and 3 except that households in the bottom four income quintiles receive average tax cuts in both 2022 and 2030, average tax cuts are larger for households in the bottom four income quintiles, and average tax burden increases for households in the top income quintile are smaller.

TABLE A2

Distribution of Federal Tax Change under Biden's Tax Plan

Excluding corporate income tax provisions, by expanded cash income percentile, 2022



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 (% points)	Under the proposal (%)
Lowest quintile	5.5	-34.7	-790	-5.3	-2.5
Second quintile	2.6	-35.9	-950	-2.4	4.8
Middle quintile	1.6	-35.0	-1,020	-1.4	11.1
Fourth quintile	1.2	-36.1	-1,280	-1.0	15.3
Top quintile	-3.5	241.6	10,150	2.6	26.6
All	-0.7	100.0	590	0.6	19.1
Addendum					
80–90	0.7	-14.3	-1,160	-0.6	18.9
90–95	0.3	-4.3	-740	-0.3	21.3
95–99	-0.9	16.1	3,520	0.7	24.5
Top 1 percent	-13.3	244.2	221,230	9.3	39.3
Top 0.1 percent	-18.2	150.6	1,330,800	12.6	43.3

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Notes: Estimates are for calendar year. Baseline is current law. Proposal includes all assumptions detailed in the appendix. Distributional estimates do not include the impact of proposals to increase tax compliance.

(a) Percentiles include both filing and nonfiling units but exclude those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. 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 (in 2019 dollars) are: 20% \$24,800; 40% \$49,800; 60% \$88,500; 80% \$159,800; 90% \$234,300; 95% \$331,500; 99% \$788,100; 99.9% \$3,472,100. For a description of expanded cash income, see <http://www.taxpolicycenter.org/TaxModel/income.cfm>.

(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 (including individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

TABLE A3

Distribution of Federal Tax Change under Biden's Tax Plan Excluding Corporate Income Tax Provisions, by expanded cash income percentile, 2030



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 (% points)	Under the proposal (%)
Lowest quintile	1.2	-4.5	-230	-1.1	2.2
Second quintile	0.6	-4.8	-270	-0.5	8.1
Middle quintile	0.5	-6.9	-420	-0.4	13.6
Fourth quintile	0.4	-8.0	-600	-0.4	17.4
Top quintile	-3.0	124.2	10,990	2.2	27.9
All	-1.2	100.0	1,260	0.9	20.9
Addendum					
80–90	0.1	-1.4	-230	-0.1	20.6
90–95	-0.2	1.6	560	0.2	22.9
95–99	-1.5	15.2	7,160	1.1	27.7
Top 1 percent	-9.7	108.8	211,110	6.6	38.1
Top 0.1 percent	-13.7	71.3	1,345,300	9.4	40.8

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Notes: Estimates are for calendar year. Baseline is current law. Proposal includes all assumptions detailed in the appendix. Distributional estimates do not include the impact of proposals to increase tax compliance.

(a) Percentiles include both filing and nonfiling units but exclude those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. 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 (in 2019 dollars) are: 20% \$28,000; 40% \$55,700; 60% \$97,700; 80% \$171,500; 90% \$248,900; 95% \$360,600; 99% \$858,500; 99.9% \$3,987,400. For a description of expanded cash income, see <http://www.taxpolicycenter.org/TaxModel/income.cfm>.

(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 (including individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

APPENDIX D. ALTERNATIVE WAYS OF MEASURING DISTRIBUTIONAL EFFECTS OF TAX CHANGES

Analysts use several measures to assess the distributional effects of tax changes. No perfect measure exists, and a combination of measures may be more informative than any single measure.¹⁵

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 they had available before the tax change. Arguably, a tax change that raises or lowers after-tax income by the same percentage for all households leaves the progressivity of the tax system unchanged.

Other measures used to assess a tax change's effects include the shares of the tax change going to different parts of the income distribution, the size of each income group's change measured in dollars, and the percentage change in total federal tax liability. The first two measures imperfectly 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 who earns \$1,000 from \$50 to \$10 is an 80 percent cut, whereas reducing taxes on a person who earns \$1 million from

¹⁵ For further discussion, see "Measuring the Distribution of Tax Changes," Urban-Brookings Tax Policy Center, accessed March 3, 2020, <https://www.taxpolicycenter.org/resources/measuring-distribution-tax-changes>.

\$250,000 to \$150,000 is a 40 percent cut. But the tax savings boost after-tax income only about 4 percent for the lower-income person compared with over a 13 percent increase for the higher-income person.

Table A4 shows several measures of the effects of Biden’s tax proposals on households at different income levels in 2022. Measured by percent change in after-tax income, households in the top 1 percent of income are affected the most by the proposal. Measured by the share of total tax change, average tax change, or change in share of federal taxes, households in the top 1 percent of the income distribution are also affected the most by the proposal. In contrast, measured by the percent change in tax, the bottom quintile sees the largest change simply because low-income tax units have relatively low tax liability under current law.

TABLE A4

Alternative Presentations of Change in Distribution of Tax Burdens under Biden's Tax Plan
By expanded cash income percentile, 2022



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	5.2	-12.8	(750)	-177.8	-1.0	-0.4
Second quintile	2.2	-11.7	(790)	-27.9	-1.1	2.2
Middle quintile	1.0	-8.4	(620)	-6.9	-1.3	8.3
Fourth quintile	0.4	-4.7	(420)	-2.0	-1.7	16.5
Top quintile	-5.0	137.0	14,700	15.9	5.1	73.1
All	-1.8	100.0	1,510	7.9	0.0	100.0
Addendum						
80–90	-0.2	2.0	410	1.0	-1.0	19.7
90–95	-0.8	4.3	1,880	3.0	-0.5	22.2
95–99	-2.4	16.0	8,970	7.5	-0.1	25.6
Top 1 percent	-15.9	114.8	265,640	37.1	6.6	41.2
Top 0.1 percent	-21.8	70.6	1,595,110	49.3	4.4	45.8

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0920-1).

Notes: Estimates are for calendar year. Baseline is current law. Proposal includes all assumptions detailed in the appendix. Distributional estimates do not include the impact of proposals to increase tax compliance.

(a) Percentiles include both filing and nonfiling units but exclude those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. 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 (in 2019 dollars) are: 20% \$24,800; 40% \$49,800; 60% \$88,500; 80% \$159,800; 90% \$234,300; 95% \$331,500; 99% \$788,100; 99.9% \$3,472,100. For a description of expanded cash income, see <http://www.taxpolicycenter.org/TaxModel/income.cfm>.

(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 (including individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

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ACKNOWLEDGMENTS

The views expressed are those of the authors and should not be attributed to the Urban-Brookings Tax Policy Center, the Urban Institute, the Brookings Institution, their trustees, or their funders.

The authors thank Len Burman, Howard Gleckman, Mark Mazur, Eugene Steuerle, and Eric Toder for helpful comments on earlier drafts; Livia Mucciolo, Safia Sayed, and Noah Zwiefel for research assistance; and Ann Clevon for preparing the draft for publication.

The Tax Policy Center is a joint venture of the Urban Institute and Brookings Institution. For more information, visit taxpolicycenter.org or email info@taxpolicycenter.org.

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