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Budget Model

PWBM Analysis of the Biden Platform

Updated on September 25, 2020 to include Appendix A

Updated on October 28, 2020 to include Appendix B

A follow up post examines the economic effects of the Biden immigration plan by itself.

Summary: Presidential candidate Joe Biden's campaign has released a substantial list of policy proposals. PWBM finds that over the 10-year budget window 2021 – 2030, the Biden platform would raise $3.375 trillion in additional tax revenue and increase spending by $5.37 trillion. Including macroeconomic and health effects, by 2050 the Biden platform would *decrease* the federal debt by 6.1 percent and *increase* GDP by 0.8 percent relative to current law. Almost 80 percent of the increase in taxes under the Biden tax plan would fall on the top 1 percent of the income distribution.

Key Points

- Over fiscal years 2021 – 2030, the Biden platform would raise $3.375 trillion in new tax revenue while increasing spending by $5.37 trillion.

- Under the Biden tax plan, households with adjusted gross income (AGI) of $400,000 per year or less would not see their taxes increase directly but would see lower investment returns and wages as a result of corporate tax increases. Those with AGI *at* or *below* $400,000 would see an average decrease in after-tax income of 0.9 percent under the Biden tax plan, compared to a decrease of 17.7 percent for those with AGI *above* $400,000 (the top 1.5 percent).

- The largest areas of new net spending are education at $1.9 trillion over ten years and infrastructure and R&D at $1.6 trillion over ten years.

- In total, including macroeconomic and health effects, the Biden platform increases federal debt by 0.1 percent in 2030 before decreasing debt by 1.9 percent in 2040 and 6.1 percent in 2050; GDP decreases by 0.4 percent in 2030, sees no change in 2040, and increases by 0.8 percent in 2050.

Contents

1. Overall Budget Effects

Over the conventional ten-year budget window, we estimate that the Biden platform will raise $3.375 trillion in new revenue while increasing spending by $5.37 trillion for a net increase in the primary deficit of $1.975 trillion. Table 1 breaks those new revenue and spending numbers into their main components.

Table 1. Overall Revenue and Spending Effects of the Biden Platform, 2021-2030

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Spending/Revenue Category	Billions of $
Total Tax	***3,375.4***
Corporate	1,438.5
Payroll	992.8
Individual Income	944.0
Total Spending	***5,370.0***
Education	1,929.5
Infrastructure and R&D	1,600.8
Housing	650.0
Social Security Benefits	290.7
Healthcare - Prescription Drugs	-1,253.0
Healthcare - Other New Spending	1,605.0
Paid Leave*	547.0

Notes: For PWBM's long-term macroeconomic modeling, all of Biden's provisions for new spending on Education, Social Security Benefits, and Healthcare (Spending and Drugs) are assumed to continue into the future past 2031. Some Housing Assistance provisions and all Infrastructure and R&D provisions end in 2031. Paid Leave is not incorporated into PWBM's macroeconomic modeling.

* Source: This estimate for Paid Leave comes from the CBO's 2020 score of H.R. 1185, the FAMILY Act, which Biden's paid leave plan is based on. https://www.cbo.gov/system/files/2020-02/hr1185_2.pdf

The largest new revenue-raisers in the Biden tax plan are the corporate tax at $1,438.5 billion over the ten-year budget window, followed by the payroll tax at $992.8 billion and the individual income tax at $944 billion.

The largest areas of new net spending in the ten-year budget window are education at $1.9 trillion, infrastructure and research and development (R&D) at $1.6 trillion, and housing assistance at $650 billion. The components of Biden's healthcare plan that were detailed enough to score come to a net increase in spending of $352 billion over ten years, while his Social Security plan increases spending by $291 billion over ten years.

Additionally, Biden's paid leave proposal is to implement H.R. 1185, the FAMILY Act, which the Congressional Budget Office (CBO) scores as spending $547 billion over ten years.

Some of the new spending programs in the Biden platform are discontinued past 2030. These include the infrastructure and R&D proposals as well as investments in the Affordable Housing Fund. PWBM's long-term macroeconomic analysis assumes that all of the Biden plan's other new spending programs and tax changes continue indefinitely past the ten-year budget window. Therefore on a conventional basis, in 2031 the Biden plan would raise $446 billion in new taxes and increase spending by $350 billion, compared to $1.1 trillion in revenue and $635 billion in spending in 2050. These estimates exclude potential spending on expanding elder care and paid leave, as those provisions do not appear in PWBM's macroeconomic analysis.

The following sections tackle those component policy areas in more detail—describing Biden's major policy proposals, their budgetary impacts, and how they were modeled—first on the revenue side and then for each category of spending. Finally, we present macroeconomic estimates for the Biden platform. To better understand the impact of each policy area, we are adding the results for each policy area one at a time.

2. Biden's Tax Plan

Most provisions of the Biden tax plan focus on raising taxes on corporations, capital income, and ordinary income of high-income filers:

- Implement a Social Security "Donut Hole",
- Repeal elements of the Tax Cuts and Jobs Act (TCJA) for high-income filers,
- Raise the top rate on ordinary income,
- Eliminate stepped-up basis,
- Tax capital gains and dividends at ordinary rates,
- Limit itemized deductions,
- Raise the corporate tax rate,
- Impose a minimum tax on corporate book income,
- Raise the tax rate on foreign profits,
- Eliminate fossil fuel subsidies,
- Eliminate real estate loopholes,
- Impose sanctions on tax havens.[1]

Those provisions are described in detail in PWBM's analyses of the Biden's original tax plan and his updated tax plan.

Together, PWBM estimates that those provisions would raise $3.375 trillion over ten years, not including macroeconomic effects. This analysis accounts for the economic and demographic effects of the coronavirus pandemic on the tax base and so is roughly $325 billion lower than our pre-pandemic estimate.

This new tax revenue in the Biden plan comes mainly from those with relatively high household incomes, with the top 1 percent by income shouldering 80 percent of tax increase. Under the Biden plan, households with adjusted gross income (AGI) of $400,000 per year or less would not see their taxes increase directly but would see lower investment returns and wages as a result of corporate tax increases. Those with AGI at or below $400,000 would see an average decrease in after-tax income of 0.9 percent under the Biden tax plan, compared to a decrease of 17.7 percent for those with AGI above $400,000 (the top 1.5 percent by income).

Table 2 presents estimated effective tax rates under the Biden tax plan, under current law, and under the tax code pre-TCJA. Table 2a incorporates the burden of corporate income taxes under the assumption that 75 percent of the tax fall on returns to capital and the rest on wages, while Table 2b includes only direct changes to individual income and payroll taxes.

Table 2. Distribution of Federal Taxes for 2021 and 2026

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- 2a. Including the Distribution of Corporate Income Tax at the Household Level:
- 2b. Not Including the Corporate Income Tax:

2a. Including the Distribution of Corporate Income Tax at the Household Level:

	2021				2026			
		Effective Tax Rates (Income, Payroll, Corporate)				Effective Tax Rates (Income, Payroll, Corporate)		
Income group	**Income Threshold**	***pre-TCJA***	***Current Law***	***Biden Plan***	**Income Threshold**	***pre-TCJA***	***Current Law***	***Biden Plan***
Bottom quintile	-	2.5%	1.1%	1.6%	-	2.6%	2.2%	2.8%
Second quintile	$17,083	10.8%	9.1%	9.4%	$19,227	11.0%	10.9%	11.3%
Middle quintile	$39,568	18.9%	16.9%	17.3%	$45,114	18.9%	18.6%	19.1%
Fourth quintile	$74,410	21.3%	19.4%	19.8%	$84,637	21.2%	20.9%	21.3%
80-90%	$135,893	24.7%	22.8%	23.2%	$153,570	24.7%	24.4%	24.9%
90-95%	$197,982	26.6%	24.5%	25.1%	$226,124	26.5%	26.0%	26.6%
95-99%	$282,663	30.4%	26.5%	27.6%	$322,799	30.0%	29.3%	30.6%
99-99.9%	$710,028	34.5%	30.7%	37.4%	$788,945	33.8%	32.5%	37.5%
Top 0.1%	$3,293,826	34.6%	30.6%	43.0%	$3,597,440	34.5%	32.0%	41.9%

Notes: (1) When distributing the corporate income tax to households, we assume that 75 percent of the tax falls on capital owners and 25 percent falls on workers in the form of lower wages over time. These lower wages and lower investment returns are included in the "effective tax rate" measure shown above.

(2) For the purposes of this modeling, we hold income constant between the each of the different policy scenarios. E.g., expiring provisions under current law mean that taxpayers will realize certain forms of income earlier, boosting their 2021 income—this type of behavioral effect is disabled in PWBM's tax model for this analysis.

(3) Values represent effective tax burdens under the pre-TCJA (2017), current law, or Biden plan tax codes if each were implemented in 2021 and 2026.

2b. Not Including the Corporate Income Tax:

	2021				2026			
		Effective Tax Rates (Income, Payroll, Corporate)				Effective Tax Rates (Income, Payroll, Corporate)		
Income group	**Income Threshold**	***pre-TCJA***	***Current Law***	***Biden Plan***	**Income Threshold**	***pre-TCJA***	***Current Law***	***Biden Plan***
Bottom quintile	-	0.6%	0.3%	0.3%	-	0.8%	1.0%	1.0%
Second quintile	$16,913	9.5%	8.6%	8.6%	$19,003	9.8%	10.1%	10.1%
Middle quintile	$39,379	17.7%	16.4%	16.4%	$44,742	17.7%	17.9%	17.9%
Fourth quintile	$73,957	20.0%	18.9%	18.9%	$84,043	20.0%	20.2%	20.2%
80-90%	$135,184	23.2%	22.2%	22.2%	$152,291	23.4%	23.6%	23.6%
90-95%	$196,420	24.8%	23.8%	23.8%	$223,896	24.8%	25.0%	25.0%
95-99%	$279,815	27.8%	25.5%	25.9%	$318,193	27.8%	28.0%	28.5%
99-99.9%	$698,956	30.3%	29.2%	34.8%	$772,112	30.2%	30.5%	34.2%
Top 0.1%	$3,213,478	27.0%	27.8%	38.4%	$3,480,020	28.0%	28.2%	35.9%

Notes: (1) For the purposes of this modeling, we hold income constant between each of the different policy scenarios. E.g., expiring provisions under current law mean that taxpayers will realize certain forms of income earlier, boosting their 2021 income—this type of behavioral effect is disabled in PWBM's tax model for this analysis.

(2) Values represent effective tax burdens under the pre-TCJA (2017), current law, or Biden plan tax codes if each were implemented in 2021 and 2026.

Relative to *current law*, the Biden plan increases effective tax rates on the top 0.1 percent by 12.4 percentage points when including the corporate tax and by 10.6 percent without it. This change leaves the top 0.1 percent with effective rates 8.4 and 11.4 percentage points higher than pre-TCJA with and without the corporate tax included, respectively.

Relative to *current law*, the Biden plan leaves the income and payroll taxes of almost all households below the 95th percentile of income unchanged. Many of those households end up shouldering some burden from the corporate income tax in the form of lower investment returns or lower wages over time—when the corporate income tax is included, households below the 95th percentile of income see their effective tax rates increase by half a percentage point or less under the Biden plan.

Relative to *pre-TCJA tax code*, every income group except the top 0.1 percent sees lower effective income and payroll tax rates under current law. When the distribution of the corporate income tax is accounted for, the TCJA cut effective rates for every income group—by 1-2 percentage points for those below the 95th percentile of income and by about 4 percentage points for the top 5 percent. Notably, however, effective tax rates under the Biden plan are still lower than under the pre-TCJA tax code for every income group below the top 1 percent.

3. Biden's Spending Plans, by Policy Area

Spending: Public Investment

Biden calls for large new public investments in each of his platforms for clean energy, his "Made in America" plan, and education—encompassing preschool, elementary, and postsecondary education. PWBM's analysis groups those investments into three major categories: education, infrastructure, and research and development (R&D).

PWBM estimates that the Biden education plan will increase spending by $1.9 trillion dollars over the ten-year budget window. This includes provisions for:

- Universal pre-K,
- Expanded funding for Title I schools,
- Two year of debtless college, universally available,
- Free public college for students from low-income families.

Collectively, Biden's infrastructure and R&D plans represent $1.6 trillion in new spending over the ten-year budget window. Those plans include new investments in:

- Water infrastructure,
- High-speed rail,
- Municipal transit,
- Other green infrastructure projects,
- Clean energy R&D,
- "Breakthrough" technology R&D, e.g., 5G and artificial intelligence.

PWBM models those investments as contributing to "public capital" which complements private capital and labor. The amount of public capital created by a public investment is determined by two main effects:

First, state and local governments tend to react to large federal investments such as the Biden plan, changing their own spending and revenues. Studies indicate that, as a result, an additional dollar in federal investment typically increases total (federal, state, and local) investment spending by well less than one dollar, inclusive of the federal dollar. In particular, states substitute federal spending for new spending (or new revenues) that they would have otherwise done (or raised) without the federal aid. Therefore, we assume that the Biden plan will generate new total infrastructure investment of about 62-cents for every dollar of federal spending, in line with our analysis of the 2018 Senate Democrat infrastructure proposal.

Second, large public investment projects take time to be built and to be put to use. We draw estimates from a 2016 Congressional Budget Office (CBO) report to determine the speed at which new public investments come online. This report evaluates a mix of investments that span education, R&D, and physical capital that are broadly similar to those outlined in the Biden plan.

PWBM models each of those public investment categories as boosting the productivity of both private capital and workers, thus increasing wages, interest rates, and GDP. We apply PWBM's previous estimates for public infrastructure productivity to Biden's proposed infrastructure investment.

Taken together, those estimates allow us to estimate a year-by-year accounting of the effects of Biden's public investment proposals on private capital and labor productivity, which allows us in turn to estimate effects on wages, interest rates, GDP, and other features of the U.S. economy as shown in our macroeconomic analysis below.

Spending: Housing

Biden has committed to a total of $650 billion in new housing spending over ten years. This plan includes:

- Providing Section 8 housing to all who qualify,
- Expanding the Low-Income Housing Tax Credit,
- Creating new incentives to build affordable housing including a new Affordable Housing Fund,
- Other programs to support low-income housing.

The first of those provisions—expanding Section 8 availability but not eligibility—is the largest, spending-wise. According to a 2015 report by CBO, the majority of households eligible for Section 8 housing do not receive assistance. In the PWBM dynamic model, we treat this program and other rental assistance support as a direct payment or transfer to households, similar to other transfers such as the Supplemental Nutrition Assistance Program.

Spending: Social Security

One of the main Social Security-related provisions in Biden's platform is the new Donut Hole payroll tax, included in the tax section above. On the spending side, Biden's plan focuses on increasing benefits, especially for households with low earnings histories. PWBM estimates that this will correspond to a $290.7 billion increase in spending over the ten-year budget window.

- Close the dual-earner, single-earner gap,
- Increase the Special Minimum Benefit and its growth rate,
- Provide a uniform increase to beneficiaries' primary insurance amounts,
- Switch the cost of living adjustment from the CPI to the CPI-Elderly (CPI-E).

Those proposals are discussed at length in PWBM's previous analysis of the Biden Social Security plan. As with the Biden tax plan, our previous analysis is updated here to account for the effects of the ongoing coronavirus pandemic.

A large share of the Biden plan's benefit increases accrue to households with low lifetime earnings and therefore low retirement savings. In the PWBM dynamic model, however, households with significant personal savings will reduce their saving in anticipation of higher benefits under the Biden plan. This reduction in savings reduces the capital stock and therefore long-run economic output.

Spending: Healthcare

The Biden healthcare plan has two main goals: improving access to and decreasing the cost of healthcare. Together, PWBM estimates that the Biden healthcare plan—including the elder care portion of the Biden caregiving plan—will increase spending by $352 billion over ten years.

On improving access to healthcare, Biden has proposed to:

- Lower the Medicare eligibility age from 65 to 60 years old,
- Expand the Affordable Care Act (ACA) insurance marketplaces,
- Make the ACA's premium tax credit more generous,
- Expand long-term elder care.[2]

While Biden has proposed offering a public insurance option similar to Medicare for those without employer-provided insurance or whose insurance is inadequate, this rather complicated proposal lacks enough detail to model and so was not included in our analysis.

Biden's main proposals for lowering costs deal with prescription drug prices. We model two of those proposals, which would:

- Allow Medicare to negotiate drug prices,
- Allow consumers to import drugs from abroad.

We find that Biden's other main prescription drug proposals—limiting launch prices for new specialty drugs through independent review boards and limiting drug price increases to inflation—are not likely to have much effect beyond allowing Medicare to negotiate prices and allowing consumers to import prescription drugs from abroad.

PWBM analyzes the economic effects of the Biden healthcare plan through our integrated health model, which captures the links between changes in health, demographics, and the broader economy. For example, this model captures how individuals make decisions about which health insurance plan to choose—or whether to choose one at all—and how their insurance choices affect their future health and in turn their economic productivity.

We assume that all newly-eligible households enroll in Medicare and pay income-based Medicare premiums for parts B and D. Many continue working and so continue paying payroll taxes into the system. Because they are relatively younger than most current Medicare beneficiaries, newly eligible 60 to 64-year-old beneficiaries are expected to have relatively lower healthcare costs. However, they are older than the general working-age population, and so moving those new beneficiaries onto Medicare and out of the private insurance market reduces premiums for younger workers. The ACA marketplace and premium tax credit expansions provide additional support to middle-class households.

On prescription drugs, research has shown that U.S. consumers pay prices 3-4 times higher for the same drugs as consumers in other industrialized countries that do negotiate over prices, such as the U.K., Canada, or Japan. Additionally, research suggests that lower Medicare reimbursement rates can affect how private insurance companies set their drug reimbursement rates. Drawing on a recent CBO score of the Elijah E. Cummings Lower Drug Costs Now Act, and assuming that the plan's proposal to allow consumers to import drugs from abroad will lower drug prices in the private health insurance sector as much as for Medicare, PWBM estimates that Biden's proposals would lower average prescription drug prices by roughly 60 percent. It is an open question to what extent such a price decrease will affect future research and innovation in the prescription drug market, and how those changes will affect the health of future generations.

The PWBM health model distributes expected savings from lower drug prices to households according to age, health, and prescription drug spending. Those changes reduce out-of-pocket costs and private health insurance premiums for the working-age as insurers pass on their cost savings. Retirees will see out-of-pocket costs decrease and the federal government will see a decrease in outlays as Medicare spending decreases. And because Medicare beneficiaries are older and tend to spend more on prescription drugs than the working-age population, the benefits from lower drug prices are disproportionally captured by Medicare.

Lowering drug prices reduces revenues to drug producers and can be viewed as an implicit transfer from the business sector to households and the government. PWBM's dynamic modeling, therefore, removes the value of the implicit transfer from the returns that investors realize from their investments.

4. Immigration

Much of the Biden immigration plan focuses on policies not directly tied to the federal budget or the economy, and many of the policies that are potentially relevant lack sufficient detail to model. As such, we focus our immigration analysis on two channels with potential macroeconomic consequences: the Biden proposals for a transition to legal status and for restoring immigration rates to their pre-Trump averages.

We model the Biden plan for a transition to legal status based on the 2013 Border Security, Economic Opportunity, and Immigration Modernization Act. This bill outlined a 10-year transition to lawful permanent resident status for undocumented immigrants, including immediate work permits to transition them to full legal status. Drawing on a CBO analysis of the 2013 bill, S. 744, we estimate that two-thirds of unauthorized immigrants would gain legal status under Biden's plan.

Under the Trump administration, immigration has fallen to historically low levels. Though Biden's platform includes immigration-friendly policies, the current coronavirus pandemic will likely stifle immigration in the near future. In this global environment, we project a longer-term "new normal," wherein immigration slowly returns to historical levels by 2050. We model the Biden plan only as hastening this return to historical immigration rates, which have been relatively constant for most of the prior two decades.

While we do not independently estimate the direct budgetary impact of Biden's immigration policy, this policy feeds into our analysis of the Biden platform's macroeconomic effects.

5. Estimated Macroeconomic Results

The following sections present estimates of the effects of the Biden platform on U.S. GDP, the capital stock, average hourly wages, hours worked, and debt held by the public for five scenarios. The first scenario consists of the Biden immigration and tax plans, together. Each subsequent scenario builds on the last, adding policy areas one at a time—public investment, housing, Social Security benefits, and then healthcare.

Immigration

The main demographic effect of granting legal status to most undocumented immigrants is likely to be a decrease in emigration rates, as documented immigrants emigrate back to their country less often than undocumented immigrants. By 2050, the Biden immigration plan's effects increases the U.S. population by 1.64 percent thereby increase total labor supply and GDP. Additionally, fertility increases since immigrants have more children, and this increase in turn has downstream demographic and economic effects such as a slightly younger population. This effect peaks in 2040, when the percentage of the population that is prime working age (20 to 64 years) increases from 70.00 percent under current law to 70.26 percent under the Biden immigration plan. A separate analysis provides additional details of Biden's immigration policy on the economy.

Scenario a. Immigration and Tax

The business-side provisions in the Biden plan generally increase taxes on firms. Holding all else equal, a higher corporate tax rate increases the marginal tax rate on capital, which discourages saving and thus decreases capital investment. In the PWBM model of the dynamic firm, however, this effect is dominated by four others that *increase* investment:

1. The increase in revenue from higher taxes decreases government deficits and leads to lower debt over time, which reduces the "crowding-out" effect of government debt.
2. Decreasing the allowable deduction of the global intangible low-taxed income (GILTI) implies a higher tax on foreign-earned income, decreasing U.S. multinationals' capital investment abroad through their foreign affiliates and increasing their domestic capital investment as they shift more production back to the U.S.
3. A higher corporate tax rate increases the benefits of investment expensing.
4. A higher corporate tax rate increases the value of the debt tax shield, which dilutes the cost of the rate increase.

As shown in Table 3a, the Biden tax plan decreases federal debt held by the public by 6.9 percent in 2030, 13.5 percent in 2040, and 17.3 percent in 2050. Combined with the other effects described above, this reduction in debt increases investment and thus increases the capital stock by 0.3 percent in 2030, by 0.9 percent in 2040, and by 1.6 percent in 2050. More capital in turn increases the marginal product of labor, boosting wages as well as labor supply. Those increases outweigh the labor-distorting effects of the Biden individual income tax increases and the new "Donut Hole" payroll tax. In total, as shown in Table 3a, the Biden immigration and tax plans boost GDP by 0.8 percent in 2030, by 1.0 percent in 2040, and by 1.5 percent in 2050.

Table 3a. Macroeconomic Results, Immigration and Tax Only

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	Year	GDP	Capital	Average Hourly Wage	Hours Worked	Debt Held by the Public
Total Scenario Effect (% Difference from Baseline)	2030	0.8%	0.3%	0.3%	1.4%	-6.9%
	2040	1.0%	0.9%	0.3%	1.7%	-13.5%
	2050	1.5%	1.6%	0.2%	2.3%	-17.3%

Scenario b. Adding Public Investment

For this and each subsequent scenario, we will show two sets of the results as seen in Table 3b. The first show *total* effects considering the combined macro-economic impact of all the policy proposals relative to the current law baseline. The second show *marginal* effects--that is, the additional effects that come from layering the public investment proposals on top of the previous scenario.

Our public investment analysis assumes that while Biden's education proposals remain in effect permanently, his infrastructure and R&D proposals—retrofitting public school buildings, building high speed rail, and so on—do not increase spending past 2030. Infrastructure and R&D are time-limited spending whereas, unless otherwise noted, all other spending categories discussed below stay in effect indefinitely past 2030.

As shown in Table 3b, the main marginal effects of the Biden public investment plans are to increase debt—by an additional 8 percentage points in 2030, 12.1 percentage points in 2040, and 12.8 percentage points in 2050—with GDP increasing by 0.4-0.5 percentage points in 2030, 2040, and 2050. Over time, as new public capital from the investments "comes online", wages rise slightly even as the new debt decreases investment and thus the capital stock. Some of those forms of investment, for example early childhood education, take decades to start producing public returns, and so those effects are relatively small even in 2050.

Table 3b. Macroeconomic Results, Adding Public Investment*

DOWNLOAD DATA

	Year	GDP	Capital	Average Hourly Wage	Hours Worked	Debt Held by the Public
Marginal Effect (pp. Difference from Previous Scenario)	2030	0.4%	0.3%	0.2%	0.1%	8.0%
	2040	0.5%	-0.2%	0.3%	0.1%	12.1%
	2050	0.4%	-0.6%	0.4%	0.0%	12.8%
Total Scenario Effect (% Difference from Baseline)*	2030	1.1%	0.6%	0.5%	1.6%	1.2%
	2040	1.5%	0.7%	0.7%	1.8%	-1.5%
	2050	1.8%	1.0%	0.5%	2.3%	-4.5%

* Includes Biden immigration, tax, and public investment plans

Because the non-education provisions of the public investment plan are discontinued after 2030, this policy scenario's total effects, including the effects of the Biden immigration and tax plans, increase federal debt by 1.2 percent in 2030 but *decrease* debt by 1.5 percent in 2040 and 4.5 percent in 2050. This reduction in debt, along with the long-term returns from public investments, increases GDP by 1.1 percent in 2030, 1.5 percent in 2040, and 1.8 percent in 2050.

Scenario c. Adding Housing Assistance

We assume that all of Biden's new housing provisions stay in effect past 2030 *except* for spending from his proposed Affordable Housing Fund. The largest spending provision is in the form of housing assistance to poorer households. In our model, housing assistance is implemented as a transfer to households. Since money is fungible, this transfer increases the household's budget and allows workers to spend less time working without having to consume less. In addition, because transfers do not count toward income thresholds of policies such as the federal housing rental assistance program, individuals have a greater incentive to reduce work and hence taxable income, especially for people in the lower end of the distribution. Government expenditures on means-tested programs we model, such as the supplemental nutrition assistance program (SNAP) and Medicaid, therefore rise. This additional spending on existing programs, as well as the new spending on housing assistance, increases federal debt, crowding out capital and reducing GDP over time. Since As shown in Table 3c, the main marginal effects of the Biden housing assistance plan are to increase debt and to decrease hours worked, capital, and thus output. Relative to the previous scenario (Table 3b), GDP falls by an additional 0.4 percentage points in 2030 and an additional 0.5 percentage points in 2040 and 2050.

Table 3c. Macroeconomic Results, Adding Housing Assistance*

DOWNLOAD DATA

	Year	GDP	Capital	Average Hourly Wage	Hours Worked	Debt Held by the Public
Marginal Effect (pp. Difference from Previous Scenario)	2030	-0.4%	-0.2%	2.1%	-2.6%	3.2%
	2040	-0.5%	-0.7%	1.4%	-1.9%	5.7%
	2050	-0.5%	-1.1%	0.7%	-1.2%	6.5%
Total Scenario Effect (% Difference from Baseline)*	2030	0.7%	0.4%	2.7%	-1.0%	4.3%
	2040	1.0%	0.0%	2.1%	-0.1%	4.2%
	2050	1.3%	0.0%	1.2%	1.1%	2.1%

* Includes Biden immigration, tax, public investment, and housing plans

Despite those negative marginal effects, the total effects of this policy scenario on output are positive. GDP remains above baseline by 0.7 percent in 2030, by 1.0 percent in 2040, and by 1.3 percent in 2050. Relative to baseline, debt increases by 4.3 percent in 2030, by 4.2 percent in 2040, but by only 2.1 percent in 2050.

Scenario d. Adding Social Security Benefits

The main policy effect of the Biden Social Security spending provisions is to boost benefits for low-income retirees and those with lower-wage work histories. Those households generally have little retirement savings outside of the Social Security program. However, to the extent that Biden's benefit increases accrue to households that *would* retire with significant personal savings, those households may choose to save less. This reduction in personal savings, combined with the increased debt from new spending on benefits, decreases investment and thus long-term output.

As Table 3d shows, this marginal effect of the Biden Social Security spending plan shows up as an additional drop in the capital stock of 0.3 percentage points in 2040 and 0.5 percentage points in 2050. Public debt increases by an additional 0.3 percentage points in 2030, 1.7 percentage points in 2040, and 2.6 percentage points in 2050. Hourly wages and hours worked in 2040 and 2050 fall slightly compared to the previous scenario, while GDP decreases by an additional 0.1 percentage points in 2040 and 0.2 percentage points in 2050.

Table 3d. Macroeconomic Results, Adding Social Security Benefits*

DOWNLOAD DATA

	Year	GDP	Capital	Average Hourly Wage	Hours Worked	Debt Held by the Public
Marginal Effect (pp. Difference from Previous Scenario)	2030	0.0%	0.0%	0.0%	0.0%	0.3%
	2040	-0.1%	-0.3%	-0.1%	-0.1%	1.7%
	2050	-0.2%	-0.5%	-0.1%	0.0%	2.6%
Total Scenario Effect (% Difference from Baseline)*	2030	0.7%	0.4%	2.7%	-1.0%	4.7%
	2040	0.9%	-0.3%	2.0%	-0.1%	5.9%
	2050	1.1%	-0.5%	1.0%	1.1%	4.6%

* Includes Biden immigration, tax, public investment, housing, and Social Security plans

Scenario e. Adding Healthcare

The Biden healthcare plan increases the number of people who have health insurance by lowering the Medicare eligibility age from 65 to 60, expanding the ACA insurance marketplaces and lowering ACA insurance premiums by making the ACA's premium tax credit more generous. Those changes have two effects: First, many people who are directly affected by those policies will see lower, more affordable, insurance premiums. Second, those who are 60- to 64-years old—on average, the most expensive group that private health insurance covers—are removed from private insurance pools, decreasing insurance premiums for those younger than age 60. Altogether, insurance becomes more affordable, and more people will be insured and protected against the financial consequences of bad health.

The substantial decrease in prescription drug prices will have very similar effects. The cost of prescription drugs decreases for both insurance companies and, through copays, for the insured. Assuming markets are somewhat competitive, private health insurance companies would pass on those cost saving in the form of lower premiums. With lower health insurance premiums, health insurance becomes more affordable, and more people will purchase health insurance. Lower drug prices also have the effect of lower business sector revenues and profits relative to baseline, which decreases the returns that investors receive for their investments.

Additionally, those policies lower the federal debt via two mechanisms: First, lower drug prices for Medicare directly translate to a decrease in government deficits. Second, income and payroll tax revenues of those ages 60 to 64 would increase—as firms spend less on subsidizing their employees' insurance premiums, those savings should be passed to workers in the form of higher wages over time. Those payments, together with the health insurance premiums that workers previously paid, would count as fully taxable income. As shown in Table 3e, the marginal effect of the Biden healthcare plan is to decrease federal debt by 4.6 percent in 2030, 7.8 percent in 2040, and 10.7 percent in 2050.[3]

All in all, however, Biden's healthcare policies mean that households would have to work and save less to prepare for the financial consequences of bad health. Those reductions show up in the Biden healthcare plan's marginal effects as reductions in hours worked of between 1.1 and 1.4 percentage points per year as well as *reductions* in capital in 2030 and 2040 despite the large decrease in debt. GDP is 1.1 percentage points, 0.9 percentage points, and 0.3 percentage points lower than in the previous scenario for 2030, 2040, and 2050, respectively.

Table 3e. Macroeconomic Results, Adding Healthcare (Full Biden Platform)*

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	Year	GDP	Capital	Average Hourly Wage	Hours Worked	Debt Held by the Public
Marginal Effect (pp. Difference from Previous Scenario)	2030	-1.1%	-1.1%	0.0%	-1.4%	-4.6%
	2040	-0.9%	-0.8%	0.2%	-1.3%	-7.8%
	2050	-0.3%	0.1%	0.5%	-1.1%	-10.7%
Total Scenario Effect (% Difference from Baseline)*	2030	-0.4%	-0.7%	2.7%	-2.4%	0.1%
	2040	0.0%	-1.1%	2.2%	-1.4%	-1.9%
	2050	0.8%	-0.4%	1.5%	0.0%	-6.1%

* Includes Biden immigration, tax, public investment, housing, Social Security, and healthcare plans

Taking the total effect—relative to baseline—the Biden platform as a whole increases federal debt by 0.1 percent in 2030 before decreasing it by 1.9 percent in 2040 and 6.1 percent in 2050 as certain spending provisions expire and healthcare savings and revenue boosts kick in. Hours worked are 2.4 percent lower in 2030, 1.4 percent lower in 2040, and unchanged by 2050, while average hourly wages are 2.7 percent higher in 2030, 2.2 percent higher in 2040, and 1.5 percent higher in 2050. Capital remains between -0.4 and -1.1 percent below baseline in 2030, 2040, and 2050. Finally, GDP decreases by 0.4 percent in 2030, sees no change in 2040, and increases by 0.8 percent in 2050.

6. Future Analysis

Economists often report total output (GDP) as the variable of interest when comparing estimates of public policies. This is because, in theory, a bigger pie can be redistributed by a social planner in a way that would make everyone better off. In practice, however, this thinking ignores realistic constraints on policy and does not account for non-traded benefits, such as insurance value, and externalities such as pollution. Because of those omissions, policies which trade off higher GDP for higher social welfare may appear to be less desirable under the simple GDP metric. For instance, more generous old age Social Security benefits and greater access to health insurance may induce people to work less, reducing labor and savings and thus reducing capital and GDP. However, social welfare may be higher under those policies, as individuals enjoy more leisure time and gain the implicit value that risk-averse individuals place on better retirement and health insurance.

Our dynamic model allows us to look at those welfare effects by determining how much (in dollars) a person in the model would be willing to pay (or be paid) in order to be indifferent between living in a world with the policy versus living in the current policy world. The size of those one-time 'equivalence payments' depends on the individual's birth cohort and wealth. Since those payments account for individuals' lifetime utility, looking at their distribution in the current population (and the implied value to the not-yet-born) allows a policy maker to evaluate the social value of the policy. While we do not report these welfare tables in the current analysis of candidate Biden's policy package, we will be publishing those results in the near future.

Appendix A: Distribution of Tax Credits

In our analysis of the comprehensive Biden platform, we restricted our analysis of the distributional effects of the tax provisions to revenue-raising tax changes only. Biden's overall policy plan includes new money flowing out of the government budget (e.g. expanding pre-K access) which is offset by new money coming in (e.g. higher taxes on capital gains). Some of the money flowing out would be structured as tax credits, administered through the tax code (e.g. a refundable credit for child care). The line between what constitutes "spending" vs "taxes" is blurry—for example, the aforementioned child care credit could easily be structured as a new spending program. A clearer distinction in our view is: which provisions of the plan will raise money, and which will lose money? To that end, Table 2 answers the question: which groups would bear the burden of the revenue-raising provisions?

Nonetheless, it is useful to display multiple measures of the distributional effects of policy changes. Table A.1 presents a supplemental distributional table of Biden’s tax plan, this time including several major provisions involving tax credits:

- Expand the Earned Income Tax Credit (EITC) to childless workers aged 65 and older;
- Expand the Child and Dependent Care Tax Credit to cover 50 percent of child care expenses up to $8,000 per child (limited to two children), and make the credit fully refundable;
- Expand the Premium Tax Credit by removing the income limitation for qualification, reducing the from 9.86 percent to 8.5 percent, and changing the benchmark plan to be more generous;
- Introduce a $15,000 refundable first time homebuyer credit;
- Introduce a refundable rent credit where “eligible households would receive a refundable tax credit equal to the difference between 30 percent of their household income and the lower of either their gross rent or the Small Area Fair Market Rent.”

Appendix Table A.1 shows the distributional impact of Biden’s tax plan in 2021, both with and without the major credits from Biden’s tax plan included. We present two measures, the average tax change relative to baseline, and the change in the effective tax rate (ETR) compared with baseline.

Table A.1 Distributional Effects of the Biden Tax Plan With and Without Major Tax Credits, 2021

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- Including the Distribution of Corporate Income Tax at the Household Level:
- Not Including the Corporate Income Tax:

Including the Distribution of Corporate Income Tax at the Household Level:

	Average tax change			Effective tax rate change		
Income group	**Revenue raisers only**	**Including major tax credits**	**Difference**	**Revenue raisers only**	**Including major tax credits**	**Difference**
Bottom quintile	$25	-$155	-$180	0.5%	-3.3%	-3.8%
Second quintile	$100	-$315	-$415	0.4%	-1.1%	-1.5%
Middle quintile	$195	-$265	-$460	0.4%	-0.5%	-0.9%
Fourth quintile	$380	-$475	-$855	0.4%	-0.5%	-0.9%
80-90%	$690	-$335	-$1,025	0.4%	-0.2%	-0.6%
90-95%	$1,205	$105	-$1,100	0.5%	0.0%	-0.5%
95-99%	$4,725	$3,855	-$870	1.2%	1.0%	-0.2%
99-99.9%	$82,150	$81,420	-$730	6.7%	6.6%	-0.1%
Top 0.1%	$1,339,420	$1,338,810	-$610	12.4%	12.4%	0.0%

Not Including the Corporate Income Tax:

Income group	Average tax change: Revenue raisers only	Average tax change: Including major tax credits	Average tax change: Difference	Effective tax rate change: Revenue raisers only	Effective tax rate change: Including major tax credits	Effective tax rate change: Difference
Bottom quintile	$0	-$180	-$180	0.0%	-3.8%	-3.8%
Second quintile	$0	-$415	-$415	0.0%	-1.5%	-1.5%
Middle quintile	$0	-$460	-$460	0.0%	-0.9%	-0.9%
Fourth quintile	$0	-$855	-$855	0.0%	-0.9%	-0.9%
80-90%	$0	-$1,025	-$1,025	0.0%	-0.6%	-0.6%
90-95%	$0	-$1,100	-$1,100	0.0%	-0.5%	-0.5%
95-99%	$1,615	$745	-$870	0.4%	0.2%	-0.2%
99-99.9%	$67,415	$66,685	-$730	5.6%	5.5%	-0.1%
Top 0.1%	$1,098,845	$1,098,235	-$610	10.6%	10.6%	0.0%

On average, all income groups would benefit from the various credits. Average benefits range from $180 in the bottom 20 percent of households to $1,100 in the 90 to 95th percentiles. The variations in benefits by income are in part due to demographics (e.g. higher-income households have more children on average) and in part due to income-based restrictions (e.g. the child care credit phases out starting at $125,000 in AGI).

The Biden tax plan does not raise individual or payroll taxes on households making less than $400,000 in AGI, but households would over time see lower investment returns and wages due to the plan's proposals to increase corporate income taxes. For all groups below the 90th percentile, these credits more than offset the tax burden imposed by the corporate income tax. With the credits, the 90-95th percentile of income sees an average tax increase of $105 relative to baseline, while the 99-99.9th percentile and top 0.1 percent see average tax increases of $81,420 and $1,338,810, respectively.

Appendix B: Marginal Tax Rates on Wage Earnings under Current Law and the Biden Tax Plan

Effective marginal tax rates (EMTR)—the percentage of the *next dollar* of income paid in taxes—are an important measure of economic incentives. The EMTR on wages can affect how many hours a person decides to work, or whether to work at all. In this post, we measure the EMTR on wage earnings for different types of households under current law and under the Biden tax plan.

Effective marginal tax rates can differ from statutory marginal tax rates, as phase-outs of deductions and credits create implicit marginal tax rates not reflected in statutory rates. For example, certain filers lose 15 cents of the value of the Child Tax Credit for every additional dollar of income they earn, which is not reflected in statutory marginal rates. This analysis attempts to account for such effects in the current law baseline.

Federal Marginal Tax Rates

Table 1 shows our estimates of federal EMTRs on wage earnings by Adjusted Gross Income (AGI) and marital status.

Table B.1 Federal Average Effective Marginal Tax Rates by AGI and Marital Status

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- Married Units Only:
- Unmarried Units Only:
- All Tax Units (married and unmarried):

Married Units Only:

		Average EMTRs	
AGI Threshold	**# of Tax Units**	**Baseline**	**Biden**
$0	4,853,824	1.4%	1.4%
$10,000	5,126,166	14.7%	14.7%
$30,000	9,226,821	31.8%	31.8%
$60,000	13,497,274	28.4%	28.4%
$100,000	18,536,610	35.2%	35.2%
$200,000	6,180,287	33.8%	33.8%
$400,000	1,777,837	41.0%	47.3%
$1,000,000	513,449	43.5%	54.8%

Unmarried Units Only:

		Average EMTRs	
AGI Threshold	**# of Tax Units**	**Baseline**	**Biden**
$0	128,970,634	3.6%	3.6%
$10,000	31,795,872	21.0%	21.0%
$30,000	27,289,468	30.9%	30.9%
$60,000	14,209,738	36.6%	36.6%
$100,000	5,888,891	37.2%	37.2%
$200,000	1,081,235	41.3%	41.3%
$400,000	304,678	43.9%	55.3%
$1,000,000	93,628	44.4%	54.5%

All Tax Units (married and unmarried):

		Average EMTRs	
AGI Threshold	**# of Tax Units**	**Baseline**	**Biden**
$0	133,824,458	3.6%	3.6%
$10,000	36,922,038	20.2%	20.2%
$30,000	36,516,289	31.1%	31.1%
$60,000	27,707,012	32.6%	32.6%
$100,000	24,425,501	35.7%	35.7%
$200,000	7,261,522	34.9%	34.9%
$400,000	2,082,515	41.4%	48.5%
$1,000,000	607,076	43.6%	54.7%

Under current law, federal individual income and payroll taxes have an increasing graduated marginal rate structure: tax rates rise as income rises. This structure is the net result of a regressive payroll tax (the tax base is capped at $137,700 for tax year 2020, after which point earnings are not subject to OASDI taxes) and a progressive individual income tax structure.

The Biden tax plan would increase federal EMTRs for high-income households.[4] The largest driver of this increase is a result of the “donut hole” policy, where earnings above $400K would be subject to OASDI payroll taxes, which represents a 12.4 percentage point increase. The income groups below $400K would not see a change in federal EMTRs.

State Marginal Tax Rates

In order to provide a more complete picture of the marginal tax rates associated with the Biden tax plan, we present statutory rates by state. It is important to note that each state calculates taxable income differently and may include deductions or rules specific to the state in its tax code. This heterogeneity is not captured in the statutory rates—as such, these rates are not *effective* marginal rates for each state.

State income tax schemes vary widely, but we loosely categorize them by tax structure. Table 2 presents these groupings. Nine states (AK, FL, NH*, NV, SD, TN*, TX, WA, WY) have no income tax.[5] Another nine states (CO, IL, IN, KY, MA, MI, NC, PA, UT) have a flat income tax ranging between 3.07 percent and 5.25 percent. We categorize the remaining states into "moderately progressive" or "highly progressive" tax structures, based on the number of tax brackets, where income breaks occur, and how much rates vary between brackets.[6]

Table B.2 Classification of State Income Tax Structures

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Tax Structure	States
No Income Tax	AK, FL, NH*, SD, TN*, TX, WA, WY
Flat Tax (3.07-5.25%)	CO, IL, IN, KY, MA, MI, PA, UT
Moderately Progressive, Lower Rates (mostly >=5%)	AL, CT, LA, MD, MS, NE, NM, ND, OH, OK, RI, VT, WV
Moderately Progressive, Moderate Rates (many people pay >5% & <=7%)	AR, DE, GA, ID, IA, KS, ME, MN, MO, MT, SC, VA, WI
Moderately Progressive, Higher Rates (most pay >7%)	OR
Very Progressive, Moderate Rates (most people pay >=9%)	DC, NJ, NY
Very Progressive, Higher Rates	CA, HI

* Though New Hampshire and Tennessee do not tax most income, they do tax dividend and capital gains income at 5 percent and 1 percent, respectively.

Most states have a moderately progressive income tax structure. Within this grouping, Oregon has the highest tax rates, with income above $17,800[7] taxed at 9 percent and a top rate of 9.9 percent applied to income above $250,000. States and territories with a more progressive income tax structure include California, Washington D.C., Hawaii, New Jersey, and New York. These states have top rates that vary between 8.8 percent (NY) and 13.3 percent (CA). Five states (CA, CT, DC, NJ, NY) have a millionaire tax, where the top income tax rate applies to income over a million dollars (or more, depending on the state). North Dakota and Hawaii's top rates apply to income over $433,000 and $400,000 respectively.[8]

A previous version of this brief incorrectly listed the cost of Biden's paid leave proposal as $527 billion instead of $547 billion.

This analysis required the full capabilities of the PWBM integrated model. Contributions were made by Alexander Arnon, Marcos Dinerstein, Maddison Erbabian, Jagadeesh Gokhale, Yan He, Zheli He, Austin Herrick, Jon Huntley, Victoria Osorio, Minh Quach, John Ricco, Seul Ki (Sophie) Shin, Xiaoyue Sun, Daniela Viana Costa, and Youran Wu. The analysis was directed by Efraim Berkovich, Richard Prisinzano, Felix Reichling, and Kent Smetters. Kody Carmody provided background research and writing support. Prepared for the website by Mariko Paulson.

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1. PWBM does not analyze this provision in this brief due to inadequate detail. ↩

2. This spending is not included in PWBM's macroeconomic analysis. ↩

3. As noted previously, PWBM's macroeconomic analysis here excludes the Biden proposals for expanding elder care and paid leave. ↩

4. Note that this analysis only considers the revenue-raising provisions of the Biden tax plan. Some credits not included here (for example the expansion of the Premium Tax Credit) would affect EMTRs for some filers making less than $400K. ↩

5. Though New Hampshire and Tennessee do not tax most income, they do tax dividend and capital gains income at 5 percent and 1 percent, respectively. ↩

6. Loughead, K. 2020. "State Individual Income Tax Rates and Brackets for 2020." *Tax Foundation*. https://taxfoundation.org/state-individual-income-tax-rates-and-brackets-for-2020/ ↩

7. The income breaks and tax brackets considered are those for people who are married and filing jointly, since much income distribution research is based on household income. ↩

8. Loughead, K. 2020. "State Individual Income Tax Rates and Brackets for 2020." *Tax Foundation*. https://taxfoundation.org/state-individual-income-tax-rates-and-brackets-for-2020/ ↩