MACROECONOMIC ANALYSIS OF H.R. 3938 THE "BUILD IT IN AMERICA ACT," AS ORDERED TO BE REPORTED BY THE COMMITTEE ON WAYS AND MEANS, ON JUNE 13, 2023

Prepared by the Staff
of the
JOINT COMMITTEE ON TAXATION

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Contents

INTRODUCTION

Pursuant to House Rule XIII(8)(b), this document,[1] prepared by the staff of the Joint Committee on Taxation ("Joint Committee staff"), provides an analysis of the macroeconomic effects of H.R. 3938, the "Build It in America Act," as ordered to be reported by the Committee on Ways and Means on June 13, 2023. The basis for this analysis is the projected change in tax revenues as estimated by the Joint Committee staff.[2]

[1] This document may be cited as follows: Joint Committee on Taxation, *Macroeconomic Analysis of H.R. 3938, the "Build It in America Act" as Ordered to be Reported by The Committee on Ways and Means, on June 13, 2023* (JCX-34-23), July 11, 2023. This document can also be found on the Joint Committee on Taxation website at www.jct.gov.

[2] For projected changes in revenue by provision see Joint Committee on Taxation, *Estimated Revenue Effects of H.R. 3938, the "Build It in America Act*," (JCX-29-23), June 9, 2023 at www.jct.gov.

MACROECONOMIC ANALYSIS OF H.R. 3938

This report provides an analysis of the macroeconomic effects of a proposal to reform the Internal Revenue Code ("Code"). Specifically, the proposal analyzed here is summarized in JCX-28-23, *Description of H.R. 3938, The "Build It in America Act," Scheduled for Markup by the House Committee on Ways and Means on June 13, 2023.*[3] The Joint Committee staff finds that it is impracticable to report changes to Gross Domestic Product ("GDP") from this proposal because they are estimated to be so small relative to the size of the economy and the degree of uncertainty associated with the estimate as to be negligible over the 10-year budget window. As a result, the revenue feedback resulting from this proposal is also estimated to be negligible.

The following discussion describes the proposal and explains why the macroeconomic effects and revenue feedback that would result are estimated to be negligible. The Joint Committee Staff used three macroeconomic simulation models to analyze the effects of the proposal: (1) the Joint Committee staff's Macroeconomic Equilibrium Growth Model (MEG)[4]; (2) The Joint Committee staff's Overlapping Generations Model ("OLG")[5]; and (3) the Joint Committee staff's Dynamic Stochastic General Equilibrium Model ("DSGE")[6]. A brief description of the models appears in the Appendix to this document.

The Joint Committee Staff estimates that H.R. 3938 will increase Federal revenues by about $157 billion over the budget window, and that macroeconomic effects do not additionally increase or decrease this estimate. While Federal revenues are estimated to decline immediately after enactment, estimated increases in Federal revenues for the remainder of the budget window result in a projected net increase in Federal revenues over the budget window. Within each macroeconomic model, revenue increases are used to reduce Federal debt while revenue decreases increase Federal debt levels.

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[3] Joint Committee on Taxation, *Description of H.R. 3938, the "Build It in America Act" Scheduled for Markup by The Committee on Ways and Means* (JCX-28-23), June 9, 2023, and Joint Committee on Taxation, *Description of the Chairman's Amendment in the Nature of a Substitute to H.R. 3938, The "Build It in America Act" (JCX-32-23), June 12, 2023.* These documents can also be found on the Joint Committee on Taxation website at www.jct.gov

[4] A detailed description of the MEG model may be found in Joint Committee on Taxation, *Macroeconomic Analysis of Various Proposals to Provide $500 Billion in Tax Relief* (JCX-4-05), March 1, 2005, and Joint Committee on Taxation, *Overview of the Work of the Staff of the Joint Committee on Taxation to Model the Macroeconomic Effects of Proposes Tax Legislation to Comply with House Rule XIII3(h)(2)* (JCX-105-03), December 22, 2003.

[5] A detailed description of the OLG model may be found in [add publication citations here] and in Joint Committee on Taxation, *An Overview of a New Overlapping Generations Model with an Example Application in Policy Analysis* (JCX-22R-20), October 22, 2020.

[6] A description of an earlier version of the DSGE model may be found in: *Joint Committee on Taxation, Background Information about the Dynamic Stochastic General Equilibrium Model Used by the staff of the Joint Committee on Taxation in the Macroeconomic Analysis of Tax Policy,* JCX-52-06, December 14, 2006. There is no description available for the current version of the DSGE model.

Proposal

H.R. 3938 ("the bill") includes 11 provisions organized under three subtitles, which are briefly described in this section. The first two subtitles generally focus on business deductions for certain investment and production, cost recovery, and cross-border transactions. Provisions in the third subtitle repeal or modify five energy-related tax provisions enacted by Public Law 117-169 (commonly referred to as the "Inflation Reduction Act").

The first subtitle includes three provisions that temporarily increase business deductions through the end of calendar year 2025. The first provision temporarily modifies the deduction for research and experimental expenditures for taxable years beginning after December 31, 2021 by allowing taxpayers to immediately deduct amounts paid or incurred during the taxable year instead of capitalizing and amortizing such expenditures over a five-year period.[7] The second provision temporarily extends the ability of taxpayers to compute adjusted taxable income for purposes of the section 163(j) interest limitation without regard to deductions allowable for depreciation, amortization, or depletion in taxable years beginning after December 31, 2022. This modification has the effect of increasing the deductible amount of business interest expense during the taxable year. The third provision temporarily extends the allowance of a 100-percent bonus depreciation deduction for qualified property placed into service after December 31, 2022.

The second subtitle includes three permanent provisions. The first provision permanently repeals the Hazardous Substance Superfund financing tax of 16.4 cents per barrel imposed on domestic crude oil and imported petroleum products. The second provision increases foreign tax credits by allowing taxpayers two separate elections relating to the determination of foreign income taxes paid. The third provision imposes a tax on disqualified persons acquiring U.S. agricultural land.

The third and last subtitle of the bill repeals or modifies clean energy and clean vehicle tax credits. The first two provisions repeal the clean electricity production and investment credits created under the Inflation Reduction Act, effective for facilities and property placed into service after December 31, 2024. The last three provisions reduce the amount of the clean vehicle tax credit by reverting the credit to the pre-Inflation Reduction Act definition, and repealing both the previously-owned electric vehicle credit, and the credit for qualified commercial clean vehicles.

The increase in business deductions temporarily decreases the after-tax cost of capital investment for both corporations and pass-through businesses, resulting in a temporary increase in the after-tax rate of return on business investment. Because these provisions expire after calendar year 2025, there is an incentive for businesses to increase investment and shift the timing of already planned investment forward. In addition, while the retroactivity created by effective dates prior to the date of enactment increases businesses' current cash flow, it implies that some of the revenue loss has limited effect on incentives for new investment because the after-tax rate of return is not directly affected.

[7] For expenditures outside of the United States, the current law allows for a 15-year amortization period.

While the permanent elimination of the excise tax on oil and petroleum products decreases average and marginal tax rates for some firms, the repeal of clean electricity production and investment credits will increase average and marginal tax rates for other firms. In addition, the repeal of clean vehicle credits will also increase average tax rates for some households and firms. On net, the Joint Committee staff estimates that average and effective marginal tax rates on business income will increase beginning in calendar years 2026.

EFFECTS ON ECONOMIC ACTIVITY AND REVENUES

The estimates of the effects of this proposal on economic activity and revenues were produced using an average of those effects generated by the OLG, MEG, and DSGE models, each with equal weights. This weighting scheme was chosen because no model has a clear advantage over the other in terms of modeling the provisions included in the bill. None of the models currently in use by the Joint Committee staff distinguish between production of, and investment in, "clean" or "conventional" energy or vehicles. This implies that an increase in the after-tax rate of return to "clean" investments is treated like an increase in the after-tax rate of return to investment more generally. Similarly, no distinction is made in any of the macroeconomic models between research and experimental expenditures and other capital expenditures.

The estimated macroeconomic effects of the bill on GDP are so small relative to the size of the economy and the degree of uncertainty associated with the estimate as to be insignificant within the context of a model of the aggregate economy. While the temporary business provisions in subtitle one decrease the cost of capital and encourage investment in the first three years after enactment, some of this increased investment reflects a forward timing shift of planned investment rather than additional investment that would only occur upon enactment of the bill. In addition, the retroactive period of these provisions only has an inframarginal effect on business activity. After these provisions sunset at the end of calendar year 2025, the after-tax rate of return to investment begins to decrease due to the repeal of the clean energy investment and production credits in subtitle three. The Joint Committee staff estimates that while the bill would increase the aggregate stock of capital relative to the baseline forecast over the first half of the budget window by approximately 0.1 percent, the stock of capital is estimated to decrease relative to baseline by approximately 0.1 percent in the second half of the budget window, for a negligible effect on average over the budget window.

While the increase in productive capital increases labor demand over the first half of the budget window under the bill, the increase in after-tax household income has a small, offsetting income effect that reduces labor supply. Therefore, the Joint Committee staff estimates that the increase in aggregate effective labor supply[8] relative to the baseline forecast is too small to be significant. Similarly, while household income is estimated to increase slightly and temporarily because of an increase in after-tax wages and returns on investment during the first half of the budget window, the Joint Committee staff estimates no significant effect on consumption in any part of the budget window.

The estimated macroeconomic revenue feedback is related to the degree of productive capital response in each model. In the OLG model, capital responds more positively in the first half of the budget window as firms shift investment forward because they fully expect the tax reductions through 2025 to be temporary and the subsequent tax increases to be permanent. In both the MEG and DSGE models, with less than perfect foresight, capital does not increase by as much, and the positive effect on output is somewhat offset by a reduction in labor supply. For this reason, the OLG model predicts a small positive revenue feedback effect for the first half of

[8] Effective labor supply is aggregate productivity-weighted equilibrium labor employed.

the budget window, while the other two models predict a small negative effect. In the second half of the budget window, all three models predict small negative revenue feedback as net returns to labor and investment fall. Because the estimated changes in aggregate variables are mostly impracticably small to report, the overall estimated revenue feedback effect is estimated to be so small as to be negligible over the 10-year budget window.

Second and third decade effects

Because the bill is projected to result in an increase in receipts after an initial decrease, any positive macroeconomic and revenue effects, to the extent calculable, are projected to reverse within the budget window, and continue to be negative, although too small to estimate with a reasonable degree of certainty.

APPENDIX: DATA, MODELS, AND ASSUMPTIONS USED IN THE ANALYSIS

The Joint Committee staff analyzed the proposal using the Joint Committee staff MEG, DSGE, and OLG models. While the models are based on economic data from the National Income and Product Accounts, taxable income in the models is adjusted to reflect taxable income as measured and reported on tax returns. All three models start with the standard, neoclassical production framework in which the amount of output is determined by the quantity of labor and capital used by firms, and the productivity of those factors of production. Both individuals and firms are assumed to make decisions based on observed characteristics of the economy, including wages, prices, interest rates, tax rates, and government spending levels. In particular, labor supply is determined by individuals' preferences and expectations, as well as current and future after-tax income and wealth**.** Similarly, the capital stock is determined by investors' expectations (or knowledge if perfect foresight) of after-tax returns to capital, which depend on anticipated gross receipts, costs of factor inputs, and tax rates that affect those factors. The underlying structure of the MEG model relies more on reduced-form behavioral response equations, while the OLG and DSGE models are built on theoretical microeconomic foundations.

The degree to which the Joint Committee staff relies more heavily on the results of one model versus the others depends on the specifics of the proposal being analyzed. The MEG model aggregates four separate types of labor, using separate marginal and average tax rates for all major individual and business income tax sources. The availability of investment capital to firms is determined by individuals' savings decisions, which depend on the after-tax rate of return on investment as well as on foreign capital flows. Monetary policy conducted by the Federal Reserve Board is explicitly modeled, with delayed price adjustments to changes in economic conditions allowing for the economy to be temporarily out of equilibrium in response to fiscal and monetary policy. The myopic expectation framework in the MEG model represents the extreme case of the degree of foresight individuals have about future economic conditions, in which individuals assume in each period that current economic conditions will persist permanently.

At the other end of the foresight spectrum, in the OLG model, individuals are assumed to make consumption, labor supply, and residential decisions to maximize their expected lifetime well-being given the resources they can foresee will be available to them. They are assumed to have complete information, or "perfect foresight," about economic conditions, such as wages, prices, interest rates, tax policy, and government spending, while they have uncertainty over their length of life. The OLG model represents a class of models with "micro-foundations" and life-cycle effects modeled separately for 76 "generations," each with two household types (married or single), eight labor productivity types, and 10 wealth endowment types. Individuals in each household optimally choose their labor supply from a discrete set of options—unemployed, part time, or full time. For married households, that labor supply decision is made jointly by primary and secondary earners. This indivisible labor assumption implies that the aggregate labor supply elasticity is endogenous and depends on the distribution of reservation wages[9] across households. Tax liability on household income is determined by an internal tax calculator that

[9] A "reservation wage" is the lowest after-tax wage at which an individual is willing to work.

incorporates key aspects of income tax law. The OLG model includes a business sector with distinct corporate and non-corporate entities that produce output at profit maximizing levels under perfect foresight by choosing the optimal amount of labor and private capital to be used in production. The OLG model is a large open-economy model where foreign entities purchase a portion of new debt issued by the Federal government, thereby reducing the crowding-out effect relative to that of a closed-economy model. Although debt may be held abroad, there is no additional income or investment shifting beyond what is estimated conventionally.

The DSGE model has a stochastic feature that captures some of the effects of uncertainty about future fiscal policy on the modeling outcome, representing a less extreme foresight assumption than either of the other models. In any given period agents within the model are assumed to know policy variables four years into the future, and believe policy variables will slowly return to their steady state values thereafter. In the DSGE model, there are two types of households who make decisions about labor supply, "savers" and "non-savers," where only the former has the ability to make investment decisions. As in the OLG model, these two types of households make consumption and labor supply decisions to maximize their discounted present value of lifetime well-being. Labor supplied by each household type differs in productivity, but is substitutable in the production process. As with the MEG model, the DSGE model incorporates a monetary policy reaction function, which responds to deviations in output and inflation from their long-run values. It also features nominal rigidities in goods prices, allowing for the equilibrium quantity of goods purchased to be relatively more demand-determined in the short-run than in a flexible price model.

In the OLG and DSGE models, the ability of agents to foresee changes in fiscal conditions means that the agents in the models will be unable to make optimal economic decisions if they can foresee a permanently unstable economic future, thus preventing the models from "solving" - or completing their simulations. This problem arises in a situation where deficits or surpluses are expected to indefinitely increase faster than the rate of growth of GDP, which is a characteristic under present law as well as the bill. Thus, it is necessary to make counter-factual "fiscal balance" assumptions about the expected path of debt for these models. In the MEG model, however, agents are assumed not to foresee that eventually the growing government debt-to-GDP ratio under present law will become so large that it becomes unsustainable, and the model can generate forecasts up until that point.

For models that require a fiscal balance assumption, imposing the fiscal balance assumption outside the budget window can have effects inside the window, because agents can foresee that it will occur. This "anticipation effect" is stronger the closer in time it is to agents' decision making. In recent years, developmental work on the OLG model has allowed the fiscal balance assumption to be made decades after the budget window, thus reducing the effect of this assumption on behavior inside the budget window.[10] For purposes of the simulations in this report, fiscal balance is achieved in the OLG model by allowing government consumption to adjust in 2057 as necessary to stabilize the debt-to-GDP ratio. Fiscal balance is achieved in the

[10] See Rachel Moore and Brandon Pecoraro, "Dynamic Scoring: An Assessment of Fiscal Closing Assumptions," *Public Finance Review,* vol. 48, no. 3, April 2020, pp. 340-353.

DSGE model by allowing government consumption to slowly begin adjusting in 2043 to eventually stabilize the debt-to-GDP ratio in the long-run.

The estimate of the impact of the growth effects from this proposal on its budget effects was produced using an average of those effects generated by the MEG, OLG, and DSGE models with equal weights. As described above, each model provides a somewhat different perspective on savings/investment and labor responses. The MEG model allows simulation of the proposal as drafted, with no offsetting fiscal balance assumption, and it models cross-border capital flows that can partially offset the effects of a growing deficit on interest rates. The OLG model provides detailed focus on household heterogeneity and allows for the purchase of domestic government debt by foreign entities. The DSGE model, which does not model cross-border capital flows, captures the variation in behavioral responses by savers and non-savers. It also adds imperfect foresight to the analysis, an assumption sitting between the perfect foresight assumption of the OLG model and the myopic foresight in the MEG model.

Each major tax bill potentially presents a unique combination of changes in the definition of the taxable base for different sources of income, as well as changes in tax rates on different sources of income. Because the Joint Committee staff uses these models to facilitate analysis of tax policy, and to estimate the revenue consequences of the macroeconomic effects of tax policy, the Joint Committee staff has devoted a considerable amount of time and attention to modeling the specific types of income flows affected by proposals, to the extent allowed by other sets of assumptions within each macroeconomic model. Information about the effects of the proposal on average tax rates and effective marginal tax rates on each source of income, and on after-tax returns to capital and labor, is obtained from various Joint Committee staff tax models[11] (used in the production of conventional revenue estimates) to characterize the effects of the bill within the each of the models.

[11] Descriptions of the Joint Committee staff's conventional estimating models may be found in JCX-46-11, *Testimony of the Staff of the Joint Committee on Taxation before the House Committee on Ways and Means Regarding Economic Modeling*, September 21, 2011, JCX-75-15, *Estimating Changes in the Federal Individual Income tax: Description of the Individual Tax Model*, April 24, 2015, and other documents at www.jct.gov under "Estimating Methodology."

Table 1. Key Parameters in the MEG Model			
Household		Income	Substitution
Labor Supply Elasticities			
Low income primary		-0.1	0.2
Other primary		-0.1	0.1
Low income secondary		-0.3	0.8
Other secondary		-0.2	0.6
Wage-weighted population average		-0.1	0.2
Annual rate of time preference	0.015		
Intertemporal elasticity of substitution	0.350		
Production			
Business Capital share	0.412		

Table 2. Key Parameters in the OLG Model	
Household	
Annual rate of time preference	0.060
Aggregate leisure share of time endowment	0.309
Intratemporal elasticity of substitution (consumption and housing)	0.487
Production	
Private Capital share	0.355
Public Capital share	0.078

Table 3. Key Parameters in the DSGE Model		
Household		
	Annual rate of time preference	0.030
	Intertemporal elasticity of substitution	0.500
	Frisch elasticity of labor supply	0.400
	Fraction of non-Ricardians	0.233
Production		
	Capital share	0.360
	Intermediate firm markup	0.111