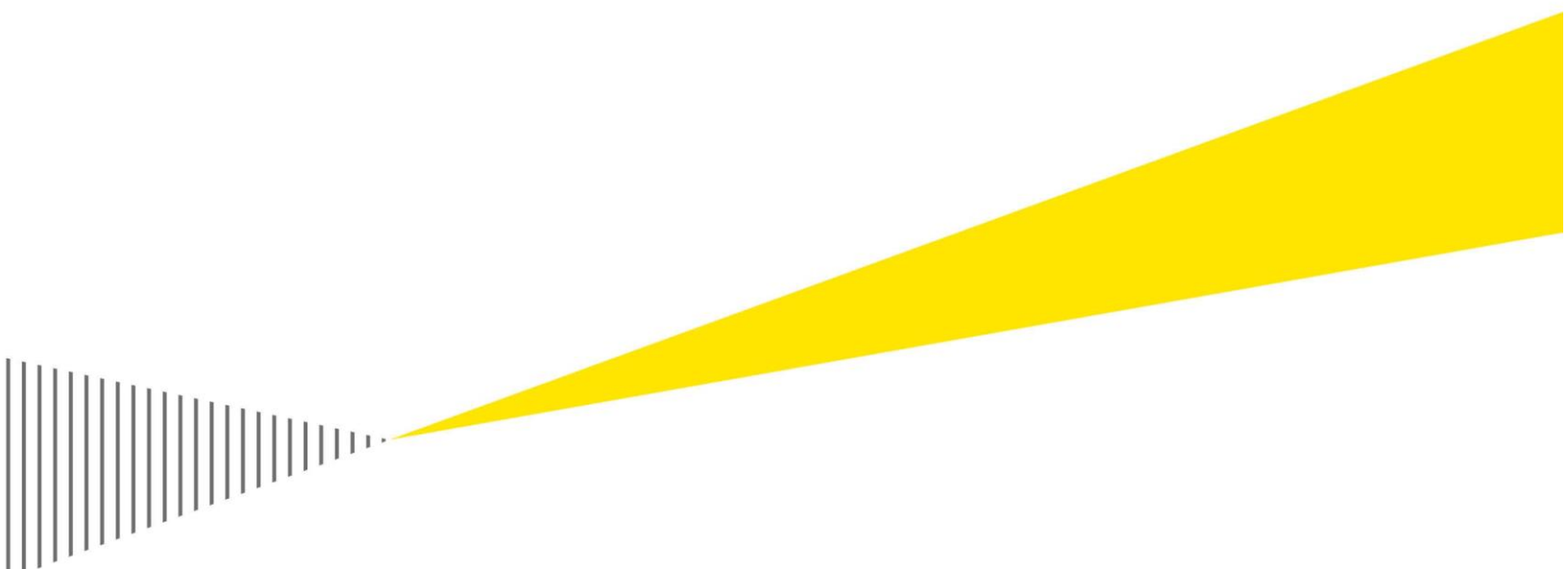


Ranking of select tax increases proposed by the Biden Administration based on GDP change per dollar of revenue raised

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This report constructs an index to rank five major tax increases proposed in President Biden's FY 2022 Budget.¹ The index is used to rank the proposed tax increases from least economically harmful to most economically harmful based on the change in gross domestic product (GDP) per dollar of revenue raised. The ranking is presented over the 10-year budget window and in the long run.

The five tax increases analyzed are:

- Increasing the corporate income tax rate to 28%,
- Increasing the top individual income tax rate to 39.6%²,
- Taxing qualified dividends as ordinary income,
- Subjecting self-employment income to the 3.8% net investment income tax for taxpayers with incomes over \$400,000,
- Taxing long-term capital gains as ordinary income for taxpayers with income over \$1 million, increasing ordinary income tax rates on long-term capital gains, and taxing capital gains at death/repeal of step-up of basis

Each of these policies is likely to have significant implications for the US economy. Taxes on capital decrease the after-tax return to investment, which can be expected to reduce investment and the capital stock. Ultimately, workers can be expected to have less capital with which to work, which reduces the productive capacity of the US economy, the wages of workers, and living standards. Taxes on labor decrease the after-tax return to work, which can be expected to reduce both the number of workers and the number of hours they work.

Constructing the index

The index estimated by this analysis encapsulates and compares the relative efficiency of each policy measured by its impact on GDP per dollar of revenue. To put the index value for each policy on an equal footing, it is assumed that the revenue from each tax increase is used to fund the same type of spending, an increase in government transfers. This abstracts from any incentive effects associated with the spending policies and focuses exclusively on how the tax increase impact the US economy per dollar of revenue as reflected by the index value.³

The index value was estimated using the EY Macroeconomic Model of the US Economy. This model captures the major features of the US economy and the key economic decisions of businesses and households affected by tax policy. It is similar to one of the models used by the Joint Committee on Taxation and US Department of the Treasury to analyze the macroeconomic impacts of tax policy changes. This model is described in the Technical Appendix accompanying this report.

The tax increase estimated to have the most adverse impact on GDP per dollar of revenue is given an index value of 100 with the other tax increases scaled to this policy based on the estimated GDP impact per dollar of revenue for each. In this way, the index provides a ranking of

the five tax increases from least harmful to most harmful based on GDP per dollar of revenue raised.

Key results

Among those policies ranked, this analysis finds that:

- The proposals to increase taxes on capital gains are, as a group, the most economically harmful in terms of their adverse impact on GDP per dollar of revenue either over the 10-year budget window or in the long run.
- Taxing qualified dividends is the second most harmful of the policies ranked, followed by increasing the top corporate income tax rate to 28%, increasing the top individual tax rate to 39.6%, and subjecting self-employment income to the 3.8% net investment income tax.
- Policies that increase taxes tax on capital income (i.e., capital gains, dividends, and the corporate income tax rate) are found to be more harmful than those that, at least in part, also increase taxes on labor income (39.6% top individual income tax rate, 3.8% NIIT applied to self-employment income).⁴
- The ranking of the five tax policies is the same over both the 10-year budget window and the long run, although the index values vary.

Table 1. Select tax proposals ranked by most-to-least harmful as measured by their impact on GDP per dollar of revenue

	10-year budget window	Long run
Tax capital gains as ordinary income, tax capital gains at death/repeal step-up of basis	100	100
Tax qualified dividends as ordinary income	40	75
28% top corporate income tax rate	32	61
39.6% top individual income tax rate	23	53
3.8% NIIT applied to self-employment income	14	23

Note: Long-run numbers annual numbers scaled to 2031. Index value constructed by comparing revenue raised per dollar of GDP reduction (i.e., [Change in GDP]/[Change in revenue]) with most worst policy scaled to 100.

Source: EY analysis.

Appendix. About these estimates & caveats and limitations

Background on major tax increases included in the Biden Administration's FY 2022 Budget

The Biden Administration's fiscal year (FY) 2022 Budget contains several significant tax increases. The largest tax increase, in terms of revenue, would increase the corporate income tax rate to 28% from its current rate of 21%. The Treasury Department estimates this will raise almost \$858 billion over the 10-year budget window.⁵

The Budget also proposes to increase the top individual income tax rate from 37% to 39.6%. The increase in the top marginal individual income tax rate to 39.6% is estimated by this analysis to increase revenue by \$396 billion over the 10-year budget window. For this policy the analysis deviates from a current law baseline. In particular, the top rate is assumed to permanently be 37% (i.e., the post-TCJA top individual income tax rate). This is done so as to have a long-run result that is comparable to the other policies simulated.

The Budget proposes to extend the 3.8% net investment income tax to also generally apply to self-employment income for taxpayers with incomes over \$400,000. The Treasury Department estimates these changes would raise \$237 billion over the budget window.⁶

The Budget proposes to increase the top tax rate on qualified dividends from 20% (or 23.8% if including the net investment income tax) under current law, to ordinary tax rates for taxpayers with incomes exceeding \$1 million with the top rate at 37% (40.8% including the net investment income tax). This analysis estimates this would raise \$199 billion over the budget window.

The Budget proposes to increase taxes on long-term capital gains in several ways: increase the top tax rate on long-term capital gains from 20% (23.8% including the net investment income tax) under current law to ordinary tax rates for taxpayers with incomes exceeding \$1 million with a top rate at 37% (40.8% including the net investment income tax); increasing the top individual tax rate from 37% to 39.6% including on long-term capital gains (as outlined above); and, repeal of the step-up of basis at death and taxing capital gains at death. This analysis estimates that these changes would raise \$113 billion over the budget window.

EY Macroeconomic Model of the US Economy

The EY Macroeconomic Model of the US Economy is an overlapping generations (OLG) dynamic computable general equilibrium model similar to those used by the CBO, JCT, and US Treasury Department. The general equilibrium framework accounts for changes in equilibrium prices in factor (i.e., capital and labor) and goods markets and simultaneously accounts for the behavioral responses of individuals and businesses to changes in tax treatment. Included in this framework is a foreign sector that responds to both the United States' after-tax rate of return (for investment choices) and after-tax prices in goods markets (for import/export decisions).

The OLG model used for this analysis is similar to those used by the Congressional Budget Office, Joint Committee on Taxation, and US Treasury Department.⁷ In this model, tax policy affects the incentives to work, save and invest, and to allocate capital and labor among competing uses.

Representative individuals and firms incorporate the after-tax return from work and savings into their decisions on how much to produce, save, and work.

The general equilibrium methodology accounts for changes in equilibrium prices in factor (i.e., capital and labor) and goods markets and simultaneously accounts for the behavioral responses of individuals and businesses to changes in taxation. Behavioral changes are estimated in the OLG framework, whereby representative individuals with perfect foresight incorporate changes in current and future prices when deciding how much to consume and save in each period of their lives.

Production

Firm production is modeled with the constant elasticity of substitution (CES) functional form, in which firms choose the optimal level of capital and labor subject to the gross-of-tax cost of capital and gross-of-tax wage. The model includes industry-specific detail through use of differing costs of capital, factor intensities, and production function scale parameters. Such a specification accounts for differential use of capital and labor between industries as well as distortions in factor prices introduced by the tax system. The cost of capital measure models the extent to which the tax code discriminates by asset type, organizational form, and source of finance.

The industry detail included in this model corresponds approximately with three-digit North American Industry Classification System (NAICS) codes and is calibrated to a stylized version of the 2014 US economy. Each of 36 industries has a corporate and pass-through sector except for owner-occupied housing and government production. Because industry outputs are typically a combination of value added (i.e., the capital and labor of an industry) and the finished production of other industries (i.e., intermediate inputs), each industry's output is modeled as a fixed proportion of an industry's value added and intermediate inputs to capture inter-industry linkages. These industry outputs are then bundled together into consumption goods that consumers purchase.

Consumption

Consumer behavior is modeled through use of an OLG framework that includes 55 generational cohorts (representing adults aged 21 to 75). Thus, in any one year, the model includes a representative individual optimizing lifetime consumption and savings decisions for each cohort aged 21 through 75 (i.e., 55 representative individuals) with perfect foresight. The model also distinguishes between two types of representative individuals: those that have access to capital markets (savers) and those that do not (non-savers or rule-of-thumb agents).

Non-savers and savers face different optimization problems over different time horizons. Each period non-savers must choose the amount of labor they supply and the amount of goods they consume. Savers face the same tradeoffs in a given period, but they must also balance consumption today with the choice of investing in capital or bonds. The model assumes 50% of US households are permanently non-savers and 50% are permanently savers across all age cohorts.

The utility of representative individuals is modeled as a CES function, allocating a composite commodity consisting of consumption goods and leisure over their lifetimes. Representative individuals optimize their lifetime utility through their decisions of how much to consume, save, and work in each period subject to their preferences, access to capital markets, and the after-tax

returns from work and savings in each period. Representative individuals respond to the after-tax return to labor, as well as their overall income levels, in determining how much to work and thereby earn income that is used to purchase consumption goods or to consume leisure by not working. In this model the endowment of human capital changes with age — growing early in life and declining later in life — following the estimate of Altig et al. (2001).⁸

Government

The model includes a simple characterization of both federal and state and local governments. Government spending is assumed to be used for either: (1) transfer payments to representative individuals, or (2) the provision of public goods. Transfer payments are assumed to be either Social Security payments or other transfer payments. Social Security payments are calculated in the model based on the 35 years in which a representative individual earns the most labor income. Other transfer payments are distributed on a per capita basis. Public goods are assumed to be provided by the government in fixed quantities through the purchase of industry outputs as specified in a Leontief function.

Government spending in the model can be financed by collecting taxes or borrowing. Borrowing, however, cannot continue indefinitely in this model. Eventually, the debt-to-GDP ratio must stabilize so that the government’s fiscal policy is sustainable. The model allows government transfers, government provision of public goods, or government tax policy to be used to achieve a selected debt-to-GDP ratio after a selected number of years. This selected debt-to-GDP ratio could be, for example, the initial debt-to-GDP ratio or the debt-to-GDP ratio a selected number of years after policy enactment. The baseline of the model is calibrated such that federal revenue as a share of GDP, federal spending on Social Security as a share of GDP, and the federal debt-to-GDP ratio matches the Congressional Budget Office’s *The 2019 Long-Term Budget Outlook*.⁹

Modeling the United States as a large open economy

The model is an open economy model that includes both capital and trade flows between the United States and the rest of the world. International capital flows are modeled through the constant portfolio elasticity approach of Gravelle and Smetters (2006).¹⁰ This approach assumes that international capital flows are responsive to the difference in after-tax rates of return in the United States and the rest of the world through a constant portfolio elasticity expression. Trade is modeled through use of the Armington assumption, wherein products made in the United States versus the rest of the world are imperfect substitutes.

Table A-1. Key model parameters

Intertemporal substitution elasticity	0.4
Intratemoral substitution elasticity	0.6
Leisure share of time endowment	0.4
International capital flow elasticity	3.0
Capital-labor substitution elasticity	0.8
Adjustment costs	2.0

Source: Key model parameters are generally from Joint Committee on Taxation, *Macroeconomic Analysis of the Conference Agreement for H.R. 1, The ‘Tax Cuts and Jobs Act,’* December 22, 2017 (JCX-69-17) and Jane Gravelle and Kent Smetters, “Does the Open Economy Assumption Really Mean that Labor Bears the Burden of a Capital Income Tax?” *Advances in Economic Analysis and Policy* 6(1) (2006): Article 3.

Caveats and limitations

Although various limitations and caveats might be listed, noteworthy limitations to this analysis include:

- ▶ **Estimated macroeconomic impacts limited by calibration.** This model used for this analysis is calibrated to represent the US economy and then forecast forward. However, because any particular year may reflect unique events and also may not represent the economy in the future, no particular baseline year is completely generalizable.
- ▶ **Estimates are limited by available public information.** This analysis relies on information reported by government agencies (primarily the Bureau of Economic Analysis and Internal Revenue Service). The analysis did not attempt to verify or validate this information using sources other than those described in this appendix.
- ▶ **Estimates depend on revenue impacts, behavioral responses, and details for proposed tax increases.** This analysis relies on the revenue estimates used and the behavioral responses to the policy changes modeled. Both the estimated revenue effects and behavioral responses for each of the policy changes are uncertain. The analysis also is dependent on the details of the policies analyzed. There might be a different ranking or index value if the proposals were changed in important ways.
- ▶ **Industries are assumed to be responsive to normal returns on investment.** The industries comprising the United States economy in the EY Macroeconomic Model of the US Economy are assumed to be responsive to the normal returns on investment. This contrasts to industries that earn economic profits and thereby have an increased sensitivity to statutory tax rates relative to marginal effective tax rates.
- ▶ **Full employment model.** The EY Macroeconomic Model of the US Economy, like many general equilibrium models, focuses on the longer-term incentive effects of policy changes. It also assumes that all resources throughout the economy are fully employed; that is, there is no slackness in the economy (i.e., a full employment assumption with no involuntary unemployment). Any decrease in labor supply is a voluntary response to a change in income or the return to labor that makes households choose to substitute between consumption and leisure. To provide a high-level measure of the potential employment impacts, a job-equivalents measure has been estimated. Job-equivalent impacts are defined as the change in total labor income divided by the baseline average labor income per job.
- ▶ **Lock-in effects.** In the case of analyzing the proposal to tax capital gains at death/repel step-up of basis, the analysis does not consider explicitly the economic effects of taxing gains at death on asset holding periods and portfolio reallocations. By reducing the tax benefit of holding assets until death, taxing gains at death reduces tax considerations in portfolio trading decisions and so may encourage more efficient portfolio allocations. Carryover basis has a similar, but attenuated, effect on asset holding periods and portfolio reallocations. The analysis also does not explore the effects of taxing gains at death on the distribution of the tax burden across income groups.

- ▶ **Government's budget constraint.** The estimated effects on GDP depend to an extent on how the tax revenue is used by the government. The estimates in this report assume that the revenue is returned to the private sector by an increase in government transfer payments, which is a standard assumption.
- ▶ **Analysis does not reflect impacts of COVID-19.** This analysis does not reflect any potential impacts of the COVID-19 health crisis.

Endnotes

¹ See Office of Management and Budget, *US Budget of the US Government, Fiscal Year 2022*, May 28, 2021.

² The estimated index for the proposed increase in the top individual tax rate is stylized in that it assumes that this change applies to all future years (i.e., the top individual income tax rate is assumed to permanently be 37% in the baseline whereas under current law the top individual rate will increase back to 39.6% in 2026). This stylized policy is modeled so as to have a long-run result that is comparable to the other policies modeled.

³ Certain types of spending increases are productivity enhancing or may have other potential benefits.

⁴ The proposals to increase in the top individual income tax rate to 39.6% and apply 3.8% NIIT tax to self-employment taxes involve higher taxes on both the labor and capital income. A significant share of taxpayers subject to the top individual income tax rate report income from pass-through businesses that may be comprised of returns to both labor and capital. Self-employment income itself similarly includes returns to both labor and capital.

⁵ See US Treasury Department, *General Explanations of the Administration's Fiscal Year 2022 Revenue Proposals*, May 2021.

⁶ See US Treasury Department, *General Explanations of the Administration's Fiscal Year 2022 Revenue Proposals*, May 2021.

⁷ See, for example, Shinichi Nishiyama, "Fiscal Policy Effects in a Heterogeneous-Agent Overlapping-Generations Economy With an Aging Population," Congressional Budget Office, Working Paper 2013-07, December 2013; Joint Committee on Taxation (JCT), *Macroeconomic Analysis of the 'Tax Reform Act of 2014'*, February 2014 (JCX-22-14); JCT, *Macroeconomic Analysis of Various Proposals to Provide \$500 Billion in Tax Relief*, March 2005 (JCX-4-05); and, US Department of the Treasury, *The President's Advisory Panel on Federal Tax Reform, Simple, Fair, & Pro-Growth: Proposals to Fix America's Tax System*, November 2005.

⁸ See David Altig, Alan Auerbach, Laurence Koltikoff, Kent Smetters, and Jan Walliser, "Simulating Fundamental Tax Reform in the United States," *American Economic Review* 91(3) (2001): 574-595.

⁹ See Congressional Budget Office, *The 2019 Long-Term Budget Outlook*, June 2019.

¹⁰ See Jane Gravelle and Kent Smetters, "Does the Open Economy Assumption Really Mean That Labor Bears the Burden of a Capital Income Tax?" *Advances in Economic Analysis and Policy* 6(1) (2006): Article 3.