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Measuring Marginal Effective Tax Rates on Capital Income Under Current Law

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Key Findings

- This paper updates the user cost of capital calculation in Tax Foundation's General Equilibrium model by including the split of equity and debt financing by businesses and separating out savers' required rate of return from the user cost of capital for businesses.
- This paper computes the marginal effective tax rate for eight types of business investments under current law. We find that the marginal effective tax rates (METRs) for corporate assets is slightly higher than for noncorporate assets.
- The comparison of METRs under the Tax Cuts and Jobs Act (TCJA) against pre-TCJA indicates that TCJA temporarily reduces METRs for all asset types and business formations.
- The phaseout of the TCJA's temporary provisions will increase the marginal effective tax rates on all asset types, especially in the noncorporate sector. Starting in 2026, the weighted average marginal effective tax rate in noncorporate sectors will be around 1.6 percentage points higher than corporate sectors.
- This study first examines marginal effective tax rates for the federal tax system and then includes state and local taxes, such as property taxes and state business income taxes, to compute marginal effective tax rates. The addition of state and local taxes significantly increases the METRs across all asset types.

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Introduction

The literature on measuring the impact of tax policy on altering new business investment behavior is based on the concept of the user cost of capital developed by Dale Jorgenson (1963)[1] and Robert Hall and Dale Jorgenson (1967).[2] The marginal effective tax rate (METR), a tax burden measurement built on the concept of the user cost of capital, is commonly used to summarize the impact of tax systems on business investment decisions.

Changes in taxation, including but not limited to changes in the statutory rates of the corporate income tax and personal income tax, would change the user cost of capital and thereby impact investment decisions at the margin. The Tax Cuts and Jobs Act (TCJA) of 2017 made a long list of changes to the federal tax system, not only to individual income provisions but also to provisions affecting business income.

This study will update how the Tax Foundation's General Equilibrium Model[3] measures METRs s on different types of capital investment and how this measurement has changed under current law due to the TCJA.[4] In this paper, we first describe updates made to our measurement for the marginal effective tax rate through two changes in the user cost of capital calculation. First, the split between debt and equity financing of investment is incorporated in our model framework; second, the framework for the user cost of capital is deconstructed into two layers: business and individual capital income savers.

The changes in METRs across different asset types under current law and over the next decade are presented both with and without state and local taxes. The comparison of METRs across different asset types and business forms are discussed as under pre-TCJA law, current law, and over the next decade.

The Measurement of Marginal Effective Tax Rates

The User Cost of Capital and Marginal Effective Tax Rates

Measuring the METR starts by calculating the user cost of capital,[5] which is the cost of employing or obtaining one unit of a capital asset over a defined period. The user cost of capital is the minimum rate of return that an investment must attain to cover all taxes, economic

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[1] Dale W. Jorgenson, "Capital Theory and Investment Behavior," *The American Economic Review* 53:2 (May 1963): 247-259.

[2] Robert E. Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *The American Economic Review* 57: 3 (June 1967): 391-414.

[3] Stephen J. Entin, Huaqun Li, and Kyle Pomerleau, "Overview of the Tax Found foundation's General Equilibrium Model," Tax Foundation, April 2018, https://files.taxfoundation.org/20180419195810/TaxFoundaton_General-Equilibrium-Model-Overview1.pdf.

[4] For a full list of the TCJA changes we consider in this paper, see Appendix A.

[5] Robert E. Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *The American Economic Review* 57:3 (June 1967): 391-414.

depreciation (loss of value over time due to wear and tear or obsolescence), and the opportunity cost or minimum required real after-tax return. The user cost of capital is also sometimes referred to as the service price of capital.[6]

The minimum required real after-tax return, also called the firm's real discount rate, is widely used by firms to calculate an investment's cash flow. A firm's new investments are usually financed with a mix of debt and equity. The real discount rate for the firm is calculated as the weighted average cost for equity financing and debt financing. The discount rate for equity financing is the required real after-tax rate of return on equity. The discount rate for debt financing is determined by nominal interest rate and inflation. In addition, debt financing has a tax advantage over equity financing since part of interest expense (or the whole interest payment, depending on the law) is tax-deductible. The interest deduction of debt financing depends on the assumed rates for market interest rate and inflation rate. The real discount rate for a firm can be specified as in Equation (1).

$$\mathrm{r} = f * [\mathrm{i} * (1 - p_d * t) - \pi] + (1 - f) * E \qquad (1)$$

where f is the fraction of the investment financed by debt;

i is the nominal market interest rate;

t is the marginal tax rate at the business entity level;

p_d is the deductible share of net interest paid;

π is the inflation rate; and

E is the required real after-tax rate of return on equity.

The overall cost of capital for a firm is then calculated by grossing up the real discount rate (plus depreciation) for any taxes at the business level and accounting for tax changes from tax deductions and investment credits.

We measure the cost of capital starting from considering taxation only at the business entity level for corporate firms. To focus on the analysis on the business layer, taxes on capital gains and dividends are excluded from the calculation of the cost of capital. The user cost of capital for corporate businesses can be written as in Equation (2.1).

Investments by noncorporate businesses, including sole proprietorships, partnerships, and S corporations, also must earn competitive rates of return to compensate for taxes, depreciation, and the minimum required rate of return. Even though taxes on noncorporate businesses are

[6] "Service price" usually includes all costs, including economic depreciation. The term "user cost of capital" usually includes all costs other than economic depreciation.

paid through individual income taxes, the user cost of capital can be computed in the same framework as used for the corporate sector (see Equation 2.2).

$$c_c = \frac{(r+\delta)(1-itc-t_c*Z)}{(1-t_c)} \qquad (2.1)$$

$$c_{nc} = \frac{(r+\delta)(1-itc-t_{nc}*Z)}{(1-t_{nc})} \qquad (2.2)$$

where c is the indicator for corporate business and nc indicates noncorporate business. They are the two main business sectors specified in the Tax Foundation's General Equilibrium model:

r is the real discount rate specified in Equation (1);

δ is the rate of economic depreciation;

itc is the rate of any investment tax credit taken against all capital assets[7];

t_c is the corporate income tax rate at the federal level;

t_{nc} is the income tax rates for pass-throughs at the federal level; and

Z is the net present value of the depreciation deduction on one dollar's investment at the federal level.

Capital Income Savers' After-tax Rate of Return

Besides being taxed at the firm level, the profits of corporate investments are generally taxed again when paid out to individuals. This introduces a second layer of taxation on corporate profits, which is levied at the individual level. An individual investor needs to consider whether the investment will return enough to pay them the same rate of return that they would obtain otherwise. Different from our study in 2017,[8] the tax on capital gains and dividends is not included in the calculation for the user cost of capital at the firm level. Instead, the required rate of return for individual savers is taken out from the firm level and presented as a separate layer of analysis.

[7] Due to data availability, the impact of the Research and Experimental Credit is not included in this analysis.

[8] Huaqun Li, "Measuring Marginal Tax Rate on Capital Assets," Tax Foundation, Dec. 12, 2017, https://taxfoundation.org/measuring-marginal-tax-rate-capital-assets/.

Following the Congressional Budget Office's (CBO)[9] specification of the after-tax rate of return (s) at the individual level, we compute the savers' returns in the corporate sector as a weighted average of two different financing sources, namely debt-financed and equity-financed investments. If investments are funded through issuing stock or from the reinvestment of existing profits, a competitive rate of return must be expected by investors on this equity income to pay tax on capital gains (when corporate stocks are sold) and dividends (when corporate profits are distributed as dividends). If the corporation obtains its funds through borrowing or issuing bonds, the savers (the source of the corporate investment's funding) must get enough return to cover the market interest rate and the tax on interest income at the individual level. The real after-tax rate of return for savers is computed as a weighted average rate of return for these two investment approaches.

In addition, individual investors face estate tax on their assets when they transfer wealth to heirs at death. Thus, the estate tax changes the investment incentive of an individual since it limits the amount of wealth that can be passed down to the heirs or any chosen social cause.[10] The discount rate of the individual must include the estate tax effect. So, the rate of return for savers funding corporate firms will be specified as s_c.

$$s_c = f * [\mathrm{i} * (1 - \rho_i * t_i) - \pi] + (1 - f) * E * (1 - \rho_e * t_e) - \ t_{es} \qquad (3.1)$$

where

t_i is the marginal tax rate on individual interest income, which depends on the investor's tax bracket;

t_e is the marginal individual tax rate on the return on equity (long-term capital gains and dividends);

t_{es} is the marginal tax rate for federal estate and gift tax;

ρ_i is the share of interest income subject to individual income tax;

ρ_e is the share of long-term capital gains and dividends subject to individual income tax. This share will adjust the marginal rate t_e based on what proportion of equity income is deposited in a tax-deferred saving vehicle (such as tax-deferred annuities and traditional IRA accounts), or nontaxable savings accounts (such as health savings accounts) or stepped up to its fair market

[9] Congressional Budget Office, "Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options," Dec. 18, 2014.

[10] Tax Foundation, "Measuring the Cost of Capital and Estate Tax in the Taxes and Growth Model," Nov. 21, 2017, https://taxfoundation.org/measuring-the-cost-of-capital-and-estate-tax-in-the-taxes-and-growth-model/.

value when transferred from a decedent to an heir at the time of death and becomes tax-free;[11] and

f is the fraction of the investment financed by debt and i is the nominal interest rate as in Equation (1).

Noncorporate businesses do not pay business taxes at the entity level; instead, their profit is "passed through" the business and onto the tax return of business owners. Pass-through entities are only taxed one time, at the individual rate, as discussed in the session for the user cost of capital. So, for equity-financed investments in pass-through businesses, the tax on capital gains and dividends is zero ($t_e = 0$). However, lenders who fund the investment face taxation on inflation-adjusted interest income received. The savers' after-tax return from pass-through businesses s_{nc} can be written as

$$s_{nc} = f * [i * (1 - \rho_i * t_i) - \pi] + (1 - f) * E - t_{es} \qquad (3.2)$$

Marginal Effective Tax Rates

The METR is a summary measure of the tax burden on marginal investment under the service price framework. It is a forward-looking measure of investment incentives based on expected business valuation of future cash flow. It accounts for the whole tax system including statutory tax rates, investment credits, depreciation allowances, and other tax provisions.[12, 13]

The METR is usually measured through defining two different rates of return on an investment: the before-tax and real after-tax rates of return.[14, 15] The before-tax real rate of return is the return that a marginal investment must earn to break even, or to pay taxes on the business, cover economic depreciation, and leave the individual investors enough to cover their required real after-tax return. The real after-tax rate of return is the return that individual investors expect to receive.

For a marginal investment, the user cost of capital net of the economic depreciation rate is the same as the before-tax real rate of return. The difference between those two rates of return is

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[11] Congressional Budget Office, "Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options."

[12] James B. Mackie III, "Unfinished Business of the 1986 Tax Reform Act: An Effective Tax Rate Analysis of Current Issues in the Taxation of Capital Income," *National Tax Journal* 55:2 (June 2002): 293-337.

[13] Don Fullerton, "The Use of Effective Tax Rates in Tax Policy," *National Tax Journal* 39:3 (September 1986): 285–392.

[14] Congressional Budget Office, "Computing Effective Tax Rates on Capital Income," December 2006.

[15] Don Fullerton, "The Use of Effective Tax Rates in Tax Policy."

the tax wedge. The marginal effective tax rate is defined as the ratio of the wedge to the before-tax rate of return, which can be specified for corporate and noncorporate sectors as follows.

$$\text{METR}_c = \frac{(c_c - \delta) - s_c}{c_c - \delta} \quad (4.1)$$

$$\text{METR}_{nc} = \frac{(c_{nc} - \delta) - s_{nc}}{c_{nc} - \delta} \quad (4.2)$$

METR under Current Law

As a result of the TCJA, current tax law contains several new provisions that have a significant impact on investment incentives. These provisions range from the lower corporate income tax rate of 21 percent to the 20 percent qualified business income deduction for pass-through businesses. This section will compute METRs for different capital assets and different business forms under current law.

The estimate of METRs depends on how investments are funded. We assume all investments are typically financed with a fixed debt-to-equity split across all capital assets. The fixed split comes from a CBO study from 1999 to 2008 which concluded the average share of debt financing in corporate businesses was 32 percent and in pass-through entities, 29 percent. [16]

Capital assets include equipment and software, nonresidential structures, intellectual property, inventories, and land. The aggregate METR across all assets types for each sector is then calculated using a weighted average based on the size of the capital stock in each asset type as a proportion of the entire capital stock. Table 1 shows the calculated METRs across different types of capital investment for the corporate sector and Table 2 shows METRs for the noncorporate sector.

Under current law, inventories and land, followed by investment in nonresidential structures, bear the highest METR among all assets. Equipment and software, as well as intellectual property, have the lowest METRs. This is because of the different depreciation schedule for each type of capital asset. The short-lived assets, with a depreciation life less than 21 years, can be immediately written off when they are invested under current law. In contrast, residential and nonresidential structures are mainly comprised of long-lived assets with a depreciation life of 27.5 or 39 years. The longer time the assets take to depreciate, the less depreciation allowance can be deducted on a yearly basis, the higher the METR. Inventories and land have the highest METR because their cost is not recovered until the assets are sold.

It is worth noting that in the noncorporate sector, equipment and software, as well as intellectual property, have a very small METR. This is due to the combined effects of immediate expensing and interest deductibility of these short-lived assets. Full expensing creates high depreciation

[16] Congressional Budget Office, "Taxing Capital Income: Effective Marginal Tax Rates Under 2014 Law and Selected Policy Options."

allowance, which will reduce the user cost of capital. The user cost of capital can be even lowered due to the deductibility of debt finance.

When assuming the same debt-to-equity split and the same required after-tax rate of return for equity, corporate assets have a higher METR than noncorporate assets under current law (as shown in Table 1 and Table 2). That is because the METRs are marginal effective total tax rates, including both business and individual level effective taxes. For corporate firms, the second layer of taxation on corporate profits is considered when estimating the savers' after-tax return, while the investors in noncorporate businesses only bear one layer of taxation.

METRs under Current Law in Comparison to Pre-TCJA Law

The TCJA permanently lowered the corporate income tax rate from 35 percent to 21 percent and provided a temporary 20 percent deduction on qualified business income for pass-through firms, among many other tax changes. These provisions reduced the marginal tax rates on corporate firms and pass-through businesses, decreasing METRs across almost all assets for both sectors. The METRs for those short-lived assets have the largest decrease compared to pre-TCJA. For example, the METR for the noncorporate equipment and software changes from 17.8 percent to 0.9 percent, a reduction of 93 percent.

Among all corporate assets, the range between the highest METR (26.3 percent) and the lowest METR (6.7 percent) becomes narrower under current law compared to pre-TCJA. This means the tax treatment across asset types becomes more coherent. This shrinking gap happens among noncorporate assets too.

The TCJA does not change the contrast of METRs faced by corporate and noncorporate firms after factoring in the permanent corporate tax cut and the temporary pass-through business income deduction. The METRs under current law for every asset type invested in the corporate sector is still higher than that in the noncorporate sector, which is in line with the pre-TCJA pattern. However, the METR for corporate firms fell by more than the METR for noncorporate firms for the similar assets. On a weighted average basis, current law decreases the METR in the corporate sector by 14.0 percentage points (from 30.1 percent to 16.1 percent, see Table 1), while the METR for the noncorporate sector only decreases by 12.5 percentage points (from 27.6 percent to 15.1 percent, see Table 2). Overall, though, the METR gap between corporate and noncorporate sectors has narrowed, meaning that the current tax law moves toward a less distorted treatment of corporate and noncorporate assets.

METRs over the Next Decade

Many of the individual income tax provisions under the TCJA, including the 20 percent deduction of qualified business income for certain pass-through business, are temporary and will expire over the coming years. The immediate expensing of certain capital assets, for example, will be phased out until the provision expires entirely at the end of 2026. Companies can currently deduct the full cost of their research and development (R&D) expenses immediately. However, the TCJA has scheduled the policy to end after 2021, and starting in 2022, companies will have to amortize their R&D expenses over five years. These changes to lengthen the depreciation schedules will increase the METRs for short-lived assets by a large amount. In addition, the limit on the deduction for net business interest is scheduled to become significantly tighter after 2021, as the definition is scheduled to switch from EBITDA to EBIT,[17] a narrower measure which lowers the threshold for the limit. This will increase the METR for debt-financed investments. These scheduled changes imply that effective tax rates will not stay the same over the next 10-year budget window.

Table 1 and Table 2 present the METRs for different asset types by business type—corporate or noncorporate—for the next decade. The METRs will generally increase for new investments in both corporate and noncorporate sectors over the next 10 years. New corporate investment will rise gradually due to the yearly phaseout of bonus depreciation for short-term assets. For noncorporate firms, however, a large change will happen in 2026 when the 20 percent deduction on qualified business income for pass-through businesses expires. Compared to the previous year, the weighted average METRs in 2026 for new investment will increase by around 4.0 percentage points for noncorporate entities, while the increase for corporate entities is only 1.0 percentage points.

The phaseout of temporary tax provisions will reverse the METR gap between corporate and noncorporate sectors. By the end of 2025, the 20 percent deduction on qualified business in pass-through businesses will have expired, while the corporate sector retains its permanent rate cut. The weighted average METRs for noncorporate sectors will be around 1.5 percentage points higher than that in corporate sectors starting from 2026. The expiration of the temporary provision would change the METRs faced by the corporate and noncorporate firms. This change will create a new investment distortion between these two sectors.

Our METR estimates indicate that the disparities across different asset types will start shrinking more when bonus depreciation for short-lived assets is fully phased out in 2027. The tax treatment of investment across all asset types will become more equal compared to both pre-TCJA and the current law. Starting in 2027, the METR difference between short-lived assets, equipment and software, and intellectual property, and those long-lived assets in structures, becomes much smaller than under current law. The METR is measured as an indicator for the marginal tax burden faced by new investment. The new investment is biased against corporate

[17] See Appendix, or, Tax Foundation, "The Tax Cuts and Jobs Act: Preliminary Economic Analysis," Dec. 18, 2017, https://taxfoundation.org/tax-cuts-and-jobs-act-preliminary-analysis/.

assets, especially residential structures, due to the larger METR. This shrinking gap between two sectors means there will be less distortion in terms of economic decisions about which type of capital to invest in. However, a universally higher METR after the expiration of bonus depreciation will discourage new business investment.

TABLE 1.

Marginal Effective Tax Rates for Corporate Capital Assets, 2017 and 2020 to 2029

	2017 law	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Equipment & Software	24.9%	6.7%	6.7%	7.3%	9.6%	11.7%	13.8%	16.0%	18.1%	18.1%	18.1%
Nonresidential Structures	32.2%	17.6%	17.6%	18.1%	18.8%	19.5%	20.2%	21.1%	21.9%	21.9%	21.9%
Intellectual Property	9.1%	6.7%	6.7%	18.1%	18.1%	18.1%	18.1%	18.3%	18.5%	18.5%	18.5%
Residential Structures	31.7%	21.5%	21.5%	21.9%	22.0%	22.0%	22.0%	22.2%	22.4%	22.4%	22.4%
Inventories	39.2%	26.3%	26.3%	26.7%	26.7%	26.7%	26.8%	27.0%	27.1%	27.1%	27.1%
Commercial Land	39.2%	26.3%	26.3%	26.7%	26.7%	26.7%	26.8%	27.0%	27.1%	27.1%	27.1%
Nonfarm Land	39.2%	26.3%	26.3%	26.7%	26.7%	26.7%	26.8%	27.0%	27.1%	27.1%	27.1%
Farm Land	39.2%	26.3%	26.3%	26.7%	26.7%	26.7%	26.8%	27.0%	27.1%	27.1%	27.1%
Weighted Average	30.1%	16.1%	16.1%	17.8%	18.6%	19.4%	20.1%	21.1%	22.0%	22.0%	22.0%

Source: Tax Foundation General Equilibrium Model, November 2019

TABLE 2.

Marginal Effective Tax Rates for Noncorporate Capital Assets, 2017 and 2020 to 2029

	2017 law	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Equipment & Software	17.8%	0.9%	0.9%	1.5%	4.1%	6.6%	9.1%	13.4%	16.2%	16.2%	16.2%
Nonresidential Structures	24.0%	13.2%	13.3%	13.9%	14.8%	15.7%	16.6%	20.6%	21.7%	21.7%	21.7%
Intellectual Property	5.9%	0.9%	0.9%	14.7%	14.7%	14.8%	14.9%	17.6%	17.8%	17.8%	17.8%
Residential Structures	24.5%	18.0%	18.1%	18.6%	18.7%	18.8%	18.9%	22.4%	22.6%	22.6%	22.6%
Inventories	31.2%	23.6%	23.8%	24.3%	24.4%	24.5%	24.6%	28.9%	29.0%	29.0%	29.0%
Commercial Land	31.2%	23.6%	23.8%	24.3%	24.4%	24.5%	24.6%	28.9%	29.0%	29.0%	29.0%
Nonfarm Land	31.2%	23.6%	23.8%	24.3%	24.4%	24.5%	24.6%	28.9%	29.0%	29.0%	29.0%
Farm Land	31.2%	23.6%	23.8%	24.3%	24.4%	24.5%	24.6%	28.9%	29.0%	29.0%	29.0%
Weighted Average	27.6%	15.1%	15.1%	16.5%	17.2%	17.9%	18.6%	22.6%	23.5%	23.5%	23.5%

Source: Tax Foundation General Equilibrium Model, November 2019

METRs Including State and Local Taxes

The analysis above focuses on the role of federal taxes only, so state and local taxes, such as property taxes and state corporate and individual income taxes, are not included in the METRs. When investors decide if a new plant or piece of equipment is profitable, they must account for state and local taxes to make sure the rate of return is enough to cover both federal taxes as well as state and local taxes.

The estimation for METRs in this section includes state and local taxes in both calculating the user cost of capital and in computing the required rate of return for savers.

For the user cost of capital, property taxes are included to cover the extra required return without grossing up any income tax at the business level since it is levied on assets rather than income, and the net present value of depreciation allowance is updated by adding depreciation deductions at the state level.

After considering state and local taxes, the user cost of capital can be rewritten as follows:

$$C_c = \frac{(r+\delta)\left(1-itc-t_{c,f}*z_f-t_{c,s}*(1-t_{c,f})*z_s\right)}{(1-t_c)} + t_P \quad (5.1)$$

$$C_{nc} = \frac{(r+\delta)\left(1-itc-t_{nc,f}*z_f-t_{nc,s}*(1-t_{nc,f})*z_s\right)}{(1-t_{nc})} + t_P \quad (5.2)$$

where $t_{nc,f}$ is the income tax rate for noncorporate firms at the federal level;

z_f is the net present value of depreciation deduction per dollar of investment at the federal level;

$t_{nc,s}$ and z_s are the corresponding values for the state level;

t_{nc} is the combined business income tax rate at the federal and state level and can be expressed as $t_{nc} = t_{nc,f} + t_{nc,s} - t_{nc,f} * t_{nc,s}$ by accounting for the deductibility of state and local corporate taxes from federal tax income;

t_c is the combined corporate income tax rate at the federal and state level and can be expressed as $t_c = t_{c,f} + t_{c,s} - t_{c,f} * t_{c,s}$; and

t_P is the property tax on the capital assets.

The required rate of return for savers is also updated. The tax on interest income t_i, the individual income tax on equity income t_e, and the estate tax t_{es} in Equation (3) are all updated to

yield the combined rates for both the federal and state/local taxes. For example, $t_i = t_{i,f} + t_{i,s} - t_{i,f} * t_{i,s}$.

The inclusion of state and local taxes increases the METRs significantly across all investment types, as we can see from Table 3 and Table 4. For example, under current law, including state and local taxes has raised the weighted average METR for corporate new investment from 16.1 percent to 32.5 percent. Among all the contributing state and local taxes, the property tax, which is charged on assets instead of profits, is the most important factor contributing to the increased METRs.

Short-lived assets have a small METR when state and local taxes are excluded during the time period when investment in these capital assets can be immediately expensed (see Table 1 and Table 2). Table 3 and Table 4 show that state and local taxes push the METRs for equipment/software and intellectual property to around 21 percent in noncorporate businesses under current law. On a weighted average, state and local taxes comprise roughly 50 percent of the total METR share on new capital investment under current law. This large role of state and local taxes in deciding METR is partially due to the model's assumption that state tax treatment of capital investment at the aggregate level stays unchanged after the TCJA. This assumption may have enlarged the tax burden at the state level since many states follow the federal government in offering full expensing of equipment purchase.[18] By the end of the next decade, the impact of state and local taxes will become relatively smaller when the accelerated depreciation at the federal level expires. For instance, by 2029, state and local taxes will account for around 38 percent of all taxes for noncorporate businesses.

TABLE 3.

Marginal Effective Tax Rates for Corporate Capital Assets, Including State and Local Taxes, 2017 and 2020 to 2029

	2017 law	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Equipment & Software	38.6%	25.5%	25.5%	25.9%	27.4%	28.9%	30.3%	32.1%	33.6%	33.6%	33.7%
Nonresidential Structures	44.3%	33.5%	33.5%	33.8%	34.2%	34.6%	35.1%	36.0%	36.6%	36.6%	36.7%
Intellectual Property	25.9%	25.6%	25.6%	33.5%	33.4%	33.3%	33.3%	33.8%	34.0%	34.0%	34.0%
Residential Structures	43.9%	36.3%	36.2%	36.5%	36.5%	36.4%	36.4%	36.8%	37.0%	37.0%	37.1%
Inventories	49.8%	40.1%	40.0%	40.3%	40.2%	40.1%	40.1%	40.5%	40.7%	40.7%	40.8%
Commercial Land	49.8%	40.1%	40.0%	40.3%	40.2%	40.1%	40.1%	40.5%	40.7%	40.7%	40.8%
Nonfarm Land	49.8%	40.1%	40.0%	40.3%	40.2%	40.1%	40.1%	40.5%	40.7%	40.7%	40.8%
Farm Land	49.8%	40.1%	40.0%	40.3%	40.2%	40.1%	40.1%	40.5%	40.7%	40.7%	40.8%
Weighted Average	42.6%	32.5%	32.5%	33.6%	34.1%	34.5%	35.0%	36.0%	36.7%	36.7%	36.7%

Source: Tax Foundation General Equilibrium Model, November 2019

[18] Jared Walczak and Erica York, "GILTI and Other Conformity Issues Still Loom for States in 2020," Tax Foundation, Dec. 18, 2019, https://taxfoundation.org/gilti-state-conformity-issues-loom-in-2020/#Capital.

TABLE 4.

Marginal Effective Tax Rates for Noncorporate Capital Assets, Including State and Local Taxes, 2017 and 2020 to 2029

	2017 law	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Equipment & Software	30.0%	20.6%	20.6%	21.0%	22.9%	24.6%	26.4%	29.7%	31.7%	31.7%	31.7%
Nonresidential Structures	35.5%	29.9%	30.0%	30.4%	31.1%	31.7%	32.3%	35.5%	36.3%	36.3%	36.3%
Intellectual Property	19.0%	20.8%	20.8%	30.6%	30.6%	30.6%	30.7%	33.0%	33.1%	33.1%	33.1%
Residential Structures	35.9%	33.4%	33.5%	33.9%	34.0%	34.0%	34.1%	36.9%	37.1%	37.1%	37.1%
Inventories	41.7%	38.2%	38.2%	38.7%	38.8%	38.8%	38.9%	42.3%	42.4%	42.4%	42.4%
Commercial Land	41.7%	38.2%	38.2%	38.7%	38.8%	38.8%	38.9%	42.3%	42.4%	42.4%	42.4%
Nonfarm Land	41.7%	38.2%	38.2%	38.7%	38.8%	38.8%	38.9%	42.3%	42.4%	42.4%	42.4%
Farm Land	41.7%	38.2%	38.2%	38.7%	38.8%	38.8%	38.9%	42.3%	42.4%	42.4%	42.4%
Weighted Average	38.6%	31.4%	31.5%	32.5%	33.0%	33.5%	34.0%	37.2%	37.8%	37.8%	37.8%

Source: Tax Foundation General Equilibrium Model, November 2019

Conclusion

This paper shows METRs for corporate and noncorporate firms using the Tax Foundation's General Equilibrium Model. This updated approach for calculating the user cost of capital incorporates the split between debt and equity financing and separates the required rate of return for businesses and individual savers.

Using the updated methodology, METRs under current law, pre-TCJA, and over the next decade are calculated and discussed. The changes made in the TCJA incentivize new business investment by lowering marginal effective tax rates across all asset types. The METR difference across all capital has generally become smaller. Though corporate capital income still faces a higher METR under current law, the METR gap between corporate and noncorporate businesses has temporarily shrunk. However, the expiration of those temporary provisions established in TCJA will change METRs across different types of assets and between business forms in the coming years. Among all the changes due to the expiration of bonus depreciation for short-lived assets and qualified income deduction for pass-through businesses, METRs for noncorporate capital investments would be higher than corporate capital investments in 2026, which will create a new economic distortion between corporate and noncorporate business. The disparities across different asset types will be much smaller than both pre-TCJA and under current law in the coming years.

Appendix A:

- The Tax Cuts and Jobs Act (TCJA) contained several provisions that impact the marginal effective tax rates on capital income. This analysis covers the impacts from the following provisions:[19]
    - A permanently lower federal corporate income tax rate from 35 percent to 21 percent;
    - A new 20 percent deduction of qualified business income from certain pass-through business through 2025;
    - Full expensing of new investments in capital assets with a 20-year depreciable life or shorter through 2022. Full expensing for short-life investments is set to gradually phase out after December 31, 2022. In tax year 2023, for instance, businesses would only be able to deduct 80 percent of the cost of their short-life investments; in 2024, the percentage would fall to 60 percent; and so on, until the provision expires entirely at the end of 2026;
    - A switch to amortization of research and development from expensing of those costs after December 31, 2021. Starting in 2022, R&D costs will be required to be deducted over a period of five years;
    - A limitation of business interest deduction to 30 percent of "adjusted taxable income." The adjusted taxable income is defined as earnings before interest, taxes, depreciation, and amortization (EBITDA) from 2018 to 2021, and changed as earnings before interest and taxes (EBIT) after 2021 permanently; and
    - Individual income tax rate reductions. Among all the impacts, this will change the marginal tax rates applied to interest income and business income in METR calculation.

[19] The other business tax provisions, such as eliminating the domestic production activities deduction, eliminating net operating loss (NOL) carrybacks, limiting NOL carryforwards to 80 percent of taxable income, and the changes to the Research and Experimental Credit, are not included in this analysis.

Appendix B: Model Parameters

Parameters' Name	Parameter	Assumed Value
Nominal interest rate	i	4.22%
Inflation rate	π	2%
The share of taxable equity income in C corporations	ρ_e	40%
The deductible share of interest paid under EBITDA	p_d	82%
the deductible share of interest paid under EBIT	p_d	71%
the share of interest income subject to individual income tax, corporate	ρ_i	52%
the share of interest income subject to individual income tax, noncorporate	ρ_i	76%

Data Source: Congressional Budget Office and Tax Foundation's calculation based on IRS data.