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Marginal Effective Tax Rates on Investment and the Expiring 2017 Tax Cuts

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SUMMARY

P.L. 115-97, commonly referred to as the Tax Cuts and Jobs Act (TCJA), made significant changes impacting taxes on new investment. Some provisions enacted by the TCJA, such as a reduction in the corporate tax rate and five-year amortization of research and experimentation costs, are permanent. Other provisions enacted by the TCJA, such as expensing for software and equipment and the 199A deduction for pass-through businesses, are temporary.

This report examines the differentials in tax rates by asset, sector, and source of finance, as well as the relative incentives for investment under four tax regimes: (1) current law under the TCJA in 2024; (2) law prior to the enactment of the TCJA in 2017; (3) law when the most generous provisions of TCJA were in place in 2018; and (4) tax law in 2027 when all temporary provisions will have expired, reflecting permanent tax law absent changes. The report analyzes tax rate differentials using the marginal effective tax rates (METR) concept, which estimates the share of the expected return from an investment that will be paid in taxes.

Long-existing differentials in tax rates are present in all four tax regimes:

- Within business investment, tax rates are lower for equipment, most intangibles, and oil and gas investment than for structures. The differentials were the greatest in 2018, when full expensing was allowed for equipment and intangibles.
- The tax system favors debt-financed capital over equity-financed capital. Tax rates for debt-financed capital are negative. These differences were greatest in 2017 when the highest statutory tax rates were in place, which maximized the value of interest deductions.
- Investments in owner-occupied housing are favored over business investments, and within the business sector, corporate investments are favored over noncorporate investments. These differences were most pronounced in 2017.

The overall (marginal) tax rate on investment in the economy was 11.1% before the TCJA in 2017, 7.4% in 2018, and 9.4% in 2024, and will be 11.4% in 2027. The percentage change in the user cost of capital (a measure of the input price of capital), assuming tax rules are constant over the life of the investment, is 0.5% higher for 2027 compared to 2017, 2.1% higher for 2027 compared to 2018, and 0.9% higher for 2027 compared to 2024.

The estimated effect on investment of shifts in effective tax rates depends on the long-run elasticity of investment with respect to user cost of capital for business investment. This elasticity can be multiplied by the percentage change in the user cost to estimate the effect on investment. Estimates of business investment elasticity are typically below one, generally between 0.3 and 0.7, although a recent study found a higher elasticity of around 0.9. Excluding owner-occupied housing from the aggregate user cost calculation (to only capture business investment), the percentage change between 2017 and 2027 was 0.7%, so the estimated investment increases would be between 0.2% and 0.6% after multiplying that difference by the appropriate elasticity of investment.

Returning to the 2018 law, with full expensing for equipment, software, and research, a higher interest deduction limit and lower individual tax rates would reduce the overall user cost of capital compared to pre-TCJA law by 1.6%, comprised of a decrease of 3.4% for business investment and an increase of 5.7% for owner-occupied housing. These estimates imply a 2.0% (3.4% multiplied by 0.6) increase in business capital at the midpoint elasticity.

Making the provisions for full expensing and higher interest deductions permanent but allowing the individual rates to expire would reduce the user cost of capital compared to pre-TCJA law by 2.0%, comprised of a 2.5% decrease for business and no change for owner-occupied housing. These estimates imply a 1.5% (2.5% multiplied by 0.6) increase in business investment at the midpoint elasticity. The economy-wide tax rate would be 7.0%, slightly below the rate in 2018 largely because of the more favorable treatment of owner-occupied housing.

Also retaining the passthrough deduction but allowing other individual provisions to expire would decrease the overall user cost of capital by 2.6%, comprised of a decrease of 3.2% in business capital and no change in owner-occupied housing. These

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estimates imply a 2.0% increase (3.2% multiplied by 0.6) in business investment at the midpoint elasticity. The economy-wide tax rate would be 5.8%.

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Introduction

P.L. 115-97, commonly referred to as the Tax Cuts and Jobs Act (TCJA), made numerous changes impacting taxes on new investment. Some provisions enacted by the TCJA, such as a reduction in the corporate tax rate and five-year amortization of research and experimentation costs, are permanent. Other provisions enacted by the TCJA, such as expensing for software and equipment, and the Section 199A deduction for pass-through businesses, are temporary.

This report considers the effect of these changes on investment using a measure of tax burden called the marginal effective tax rate (METR), which determines the effect of tax changes on the size and allocation of investment. It compares METRs across assets, sectors, and sources of finance under four different regimes: (1) current law effective in 2024 under the TCJA; (2) the pre-TCJA law of 2017; (3) 2018, the first year of the TCJA changes before any phaseouts began; and (4) 2027, when all temporary provisions have expired and phaseouts are completed. The final section also considers the effect of these tax changes on the incentives to invest by asset type. Such analysis may be useful to policymakers as they consider a menu of options in the coming years.

Explanation of Marginal Effective Tax Rates

Marginal effective tax rates account for the major features of the tax law that affect incentives to invest. The METR is the share of the return on the investment that is paid in taxes. For example, if the after-tax return is 5% and the pretax return is 7.5%, the effective tax rate is a third, or 33.3% (7.5% minus 5%, divided by 7.5%). In other words, out of the pretax return of 7.5%, a third is paid in taxes, leaving a 5% after-tax return. Lower marginal effective tax rates tend to increase investment, all else equal.

The METR is calculated by comparing the pretax return on an investment with its after-tax return. The pretax return is the return necessary to pay taxes and to earn the required after-tax return necessary to compensate investors through returns to equity for owners and interest payments for creditors. The after-tax return is the break-even return on an investment for investors; in other words, it is the return required by investors to justify making an investment. It accounts for the timing of income and deductions by using the present-value concept, so that future dollars are less valuable than current dollars. By accounting for the value of when deductions can be taken, it reflects major investment incentives that depend on timing, such as accelerated depreciation that is taken earlier than economic depreciation. The METR is then calculated by measuring the difference between the pretax and after-tax returns, relative to the pretax return.

The METR accounts for the major features of the tax code that affect the incentives for investment. It includes the statutory rate; cost recovery (depreciation deductions, allowance for the depletion of natural resources, and the deductions for inventory sold); the research tax credit; deductions for interest payments; for owner-occupied housing, deductions for mortgage interest and property taxes; and limits on certain deductions. It also captures taxes paid by creditors and shareholders (both U.S. and foreign) on interest, dividends, and capital gains.

For the portion of investment that is debt financed, the METR is affected by both the value of interest deductions (which is higher with higher tax rates) and the value of tax payments by creditors. For corporate investments financed by equity, in addition to the corporate tax, there is a tax on capital gains and dividends at the individual level that depends on how large a share of corporate stock is held in tax-exempt form and the share of capital gains that are realized, as well as the size of the tax rate. Capital gains and dividends are taxed at lower rates than ordinary

income. For noncorporate equity investment income, there is no entity-level tax; rather, income is taxed only at the individual level.

METRs presented in this report were calculated using the Congressional Research Service's Model for Estimating Marginal Effective Tax Rates on Investment (henceforth the CRS METR model).[1]

Expiring and Delayed Provisions in the TCJA

The TCJA (P.L. 115-97) made significant changes to the tax treatment of investment income starting in 2018. Some new provisions are permanent and took effect immediately, some provisions were temporary provisions subject to phaseouts, some were existing provisions in prior law that were phased out, and some new provisions are scheduled to expire after 2025. Most provisions reduced taxes.

Table 1 lists the major selected provisions enacted in 2017 and their treatment over time, which are reflected in the CRS METR model. The only provision that reduced taxes immediately and permanently was a reduction in the corporate tax rate. Two provisions increased taxes but delayed or phased in the effects: a change from the expensing of research expenditures to a deduction over five years, and a limit on the amount of interest that could be deducted. One provision, expensing for equipment, initially provided a decrease in taxes, but then began phasing out, eventually leading to higher taxes (all else equal) relative to pre-TCJA. Three provisions provided a temporary tax reduction for 2018 through 2025: lower individual tax rates, the noncorporate passthrough deduction, and an increase in the standard deduction. Three provisions provided a temporary marginal tax increase on owner-occupied housing for 2018 through 2025: the increase in the standard deduction, which reduced the amount of itemized deductions; the limit on itemized deductions for state and local taxes; and the reduced limit for deducting mortgage interest.

Table 1. Investment-Related Provisions in P.L. 115-97 (the Tax Cuts and Jobs Act)

Provision	Treatment
Corporate Statutory Tax Rate	Reduced permanently from 35% to 21% in 2018.
Individual Statutory Tax Rates	Reduced temporarily across the brackets for 2018 through 2025.
Expensing for Equipment and Software	Increased from 50% to 100% in 2018 through 2022, 80% in 2023, 60% in 2024, 40% in 2025, 20% in 2026, 0% in 2027.
Expensing for Research and Experimentation	Remains expensed at 100% through 2021, then subject to recovery in equal amounts over five years thereafter (permanently).
Noncorporate Passthrough Deduction	A 20% deduction for certain passthrough income from 2018 through 2025.
Limit on Interest Deductibility	Interest limited to 30% of earnings before interest, taxes, depreciation, and amortization (EBITDA) from 2018 through 2021, limited permanently to 30% of earnings before interest and taxes (EBIT) after 2021.

[1] Full detail on the CRS METR model is available in CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Provision	Treatment
Production Activity Deduction	Permanently repealed as of 2018.
Standard Deduction	Increased from 2018 through 2025.
Limit on itemized deduction for state and local taxes	Limited to $10,000 from 2018 through 2025.
Limit on itemized deduction for mortgage interest	Limited to interest on first $750,000 of mortgage debt from 2018 through 2025 for debt if incurred after December 15, 2017.

Source: CRS.

While most of these provisions have a direct effect on the METR by changing the tax rate and deductions from business income, two have an indirect effect: the increased standard deduction and the dollar limit on itemized deductions for state and local taxes. These provisions reduce the number of individual taxpayers who itemize their deductions, and therefore make deducting mortgage interest and property taxes for investments in owner-occupied housing worthwhile for fewer households.

Statutory Tax Rates

Under the TCJA, the statutory corporate tax rate was lowered substantially and permanently (from 35% to 21%), which reduces the tax on corporate equity investment. However, lowering the tax rate increases the tax on debt-financed investment by reducing the benefit of deducting interest. The degree to which the latter offsets the former depends on the share of debt finance and the extent to which the effective tax rate on equity is below the statutory rate. Because of debt finance and accelerated cost recovery, a lower tax rate can increase the tax burden for certain assets because income is taxed at less than the statutory tax rate, while deductions for interest are allowed at the statutory tax rate. This benefit to debt finance occurs because firms can deduct nominal interest at the statutory rate and most of the interest paid to creditors is not subject to tax, largely because it is held in tax-exempt retirement assets or received in the form of banking services. As an example, consider an investment that is expensed. In this case, the pretax return is the same as the after-tax return. For an equity-financed investment, the effective tax rate is zero. But, for a partially debt-financed investment, the after-tax return is smaller the higher the tax rate because nominal interest is deducted at a higher rate. In this example, the effective tax rate becomes negative, and is a larger negative (a larger subsidy) the higher the tax rate.

The TCJA also lowered individual tax rates but by much smaller amounts than the change in the corporate rate (no more than four percentage points for the largest statutory rate reductions in any tax bracket). On average, the weighted statutory tax rates that apply to business income and deductions were lowered by about two percentage points.[2] The lower rates benefit noncorporate equity investment but raise the tax on debt-financed investment both in the noncorporate business sector and for owner-occupied housing by reducing the value of interest deductions.[3]

[2] The Congressional Budget Office's (CBO's) estimates indicated a statutory tax rate of 31.4% after the tax cut and 33.5% when the individual tax cuts expire. See Paul Burnham and Dorian Carloni, *CBO's Model for Estimating the Effect That Federal Taxes Have on Capital Income From New Investment*, Congressional Budget Office, Working Paper 2022-01, February 2022, https://www.cbo.gov/publication/57429.

[3] The weighted statutory rates for mortgage interest changed little, and those for property tax deductions rose, because many lower-income home owners no longer itemized deductions under the 2018-2025 regimes.

Cost Recovery

The more quickly the cost of acquiring an asset is deducted for tax purposes, the lower the effective tax rate. If the deductions allowed for tax purposes reflect the true decline in value due to economic depreciation, then a firm's effective tax rate on equity investment is the statutory rate. The quickest recovery—expensing—allows for the cost of an investment to be deducted immediately. Expensing results in the equivalent of a zero effective tax rate on equity investments at the firm level as the present value of taxes paid in the future is offset by the immediate deduction in cost. Thus, the effective tax rate on both corporate and noncorporate equity-financed investments that are expensed is zero. Debt-financed investments have negative tax rates with expensing.

In 2017, prior to when TCJA took effect, 50% of the costs of equipment, software, and public utility structures could be expensed. The TCJA increased that share to 100% for five years, and then began phasing expensing out ratably over five years. Beginning in 2027, absent change, the expensing will end and all costs will be recovered through the Modified Accelerated Cost Recovery System (MACRS), which has been in place since 1986. MACRS provides quicker recovery than is estimated for economic depreciation, and therefore effective tax rates on equity-financed investment will still be below the statutory rate.

Under pre-2018 law and through 2021, businesses could expense investment in research, but beginning in 2022 taxes are increased as costs are recovered in equal amounts over five years. This treatment also applies to in-house developed software.

Other assets, such as buildings, mining and oil and gas structures, and entertainment did not have any changes in their cost recovery. Investment in other types of intangibles—advertising and human capital investment—are also expensed and this treatment is unchanged.

Passthrough Deduction

The passthrough deduction allows a deduction of 20% of taxable business income for noncorporate taxpayers. It is the equivalent of reducing the statutory tax rate by 20%. Because of various phaseouts and restrictions, not all noncorporate income receives the full benefit or any benefit of the passthrough deduction, but it is a significant reduction for those who benefit. It provides the equivalent of overall lower statutory tax rates on noncorporate business investment from 2018 through 2025.

Interest Limit

The TCJA interest limit restricts the amount of interest that can be deducted to 30% of earnings. Prior law also included a restriction, but it was rarely applied because of certain debt to equity safe harbors. Through 2021, the interest limit was less restrictive compared with the rules starting in 2022 because it was equal to 30% of earnings before the deduction of interest, taxes, depreciation, and amortization (EBITDA). After 2021, the interest limit is 30% of earnings before deductions for taxes and interest (EBIT). EBITDA is a larger measure of earnings than EBIT, and thus provides a less-restrictive limit.

Production Activity Deduction

The production activity deduction provided a reduction of 9% in taxable income, the equivalent of a reduction from a 35% corporate tax rate to a 31.85% rate. It was restricted to certain industries, primarily manufacturing, and overall was estimated to be an equivalent of a 3.1%

reduction for corporations and a 1.2% reduction for noncorporate business.[4] It was repealed permanently after 2017.

Standard Deduction and Limit on Deduction of State and Local Taxes and Mortgage Interest

While most of the TCJA provisions discussed above have a direct effect on the METR by changing the tax rate and deductions from business income, the increased standard deduction has an indirect effect; it reduces the number of individual taxpayers who itemize their deductions, and therefore reduces the value of deducting mortgage interest and property taxes for investments in owner-occupied housing. The dollar limit on the deduction of state and local taxes and mortgage interest has a direct effect on the remaining itemizers.

Limit on Deduction for Mortgage Interest

The TCJA changed the tax treatment of mortgage interest through 2025. Although the mortgage interest deduction is still generally available, the TCJA reduced the maximum mortgage balance eligible for the deduction from $1 million ($500,000 for married filing separately) to $750,000 ($375,000 for married filing separately). This reduced limit only applies to mortgage debt incurred after December 15, 2017. The TCJA also restricted the deduction of interest associated with home equity loans by disallowing interest on home equity loans used for purposes unrelated to the property securing the loan.

Other Provisions That Remain Unchanged

Some provisions affecting the METR are not affected by the TCJA. They include the payroll taxes that are imposed on some of the income of passthrough businesses (self-employment taxes that go into Social Security and Medicare), the underlying depreciation and other cost recovery rules for equipment that apply to any portion not expensed (which are largely accelerated and recovered over five or seven years), structures, and other intangibles outside of research expenditures, and tax credits for research. The tax rates on capital gains and dividends were also not affected by the TCJA.

METRs Across Tax Regimes

This section presents METR across four different tax regimes: (1) 2017 before the TCJA took effect; (2) 2018, a year that the tax provisions under TCJA were most favorable; (3) tax rules for 2024 under the TCJA; and (4) 2027, when all of the temporary provisions will have expired and all of the phaseouts will be completed. That is, 2027 corresponds to permanent law barring any changes. **Table 2** compares the tax parameters for these regimes, which are incorporated in the CRS METR model; corporate and noncorporate business tax rates are adjusted for the production activities deduction in 2017, and noncorporate tax rates are adjusted for the passthrough

[4] These estimates were made by dividing the production activity deduction by income subject to tax for the corporate sector and dividing the production activity deduction by income from sole proprietorships, partnerships, and Subchapter S corporations. See Table 2.1: Returns of Active Corporations, Balance Sheet, Income Statement, and Selected Other Items, Internal Revenue Service, Statistics of Income, https://www.irs.gov/statistics/soi-tax-stats-corporation-income-tax-returns-complete-report-publication-16 and Table 1.4 All Returns: Sources of Income, Adjustments Deductions and Exemptions, and Tax Items. Published as: Individual Complete Report (Publication 1304), https://www.irs.gov/statistics/soi-tax-stats-individual-statistical-tables-by-size-of-adjusted-gross-income

deduction in 2018 and 2024. The CRS METR model assumes a nominal interest rate of 6.82%, an inflation rate of 2%, and the required return to corporate equity at 6.78%, with 3.61% paid in dividends and 3.17% in capital gains. **Table 2** reports the tax parameters for each regime.

Table 2. Tax Parameters for Comparisons of Tax Regimes

Tax Feature	2017	2018	2024	2027
Corporate Tax Rate	34.0%	21.0%	21.0%	21.0%
Noncorporate Tax Rate	37.7%	29.2%	29.2%	37.7%
Interest Income Tax Rate	30.4%	28.8%	28.8%	30.4%
Share of Equipment and Software Expensed	0.5%	1.0%	0.6%	0.0%
Cost Recovery for Research	Expensed	Expensed	Five Years	Five Years
Interest Deduction Share, Corporate	100.0%	91.7%	88.1%	88.1%
Interest Deduction Share, Noncorporate	100.0%	98.3%	97.6%	97.6%
Share of Mortgage Interest Deducted	94.4%	61.6%	61.6%	94.4%
Share of Property Tax Deducted	77.9%	5.8%	5.8%	77.9%
Tax Rate, Mortgage Interest Deduction	21.8%	20.1%	20.1%	21.8%
Tax Rate, Property Tax Deduction	17.5%	18.7%	18.7%	17.5%

Source: Aside from provisions in the statute, the corporate and noncorporate tax rates for 2017 are adjusted to reflect the production activity deduction. Tax rates, and shares of deductions and other parameters, are from Paul Burnham and Dorian Carloni, *CBO's Model for Estimating the Effect That Federal Taxes Have on Capital Income From New Investment*, Congressional Budget Office, Working Paper 2022-01, February 2022, https://www.cbo.gov/publication/57429. The share of corporate and noncorporate interest deducted under EBITDA (2018) adjusts CBO's share for EBIT based on Ernst and Young, *Economic Impact of a Stricter 163(j) Interest Expense Limitation*, prepared on behalf of the National Association of Manufacturers (NAM), September 2022, https://documents.nam.org/tax/nam_interest_deductibility_study.pdf. Full detail on the CRS METR model is available in CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Notes: The corporate statutory rate in 2017 is adjusted from 35% to 34% because of the production activities deduction. Individual tax rates reflect the effects of the passthrough deduction.

METRs By Broad Asset Type

Table 3 aggregates the METRs for mixed-financed investments by broad asset type, for ready comparison across regimes and sectors.[5] Aggregate tax rates are based on the weighted average of pretax returns where the weights are equal to the asset types' capital stock shares. As a group, intangibles are favored because some intangible investments are eligible for expensing and, in the case of R&D, the research credit. Owner-occupied housing is also favored. Both intangibles and owner-occupied housing are consistently subject to negative tax rates.

Equipment and public utility structures are favored in most regimes, including in 2027, when expensing is eliminated but tax depreciation deductions are still accelerated under MACRS compared to the economic decline in the value of assets. Oil and gas and mining are also favorably treated because much of the cost is expensed. Inventories, land, and nonresidential structures are subject to the highest rates. In the case of most nonresidential structures, tax depreciation deductions are a much closer match to economic decline in value. Residential structures are taxed at lower rates than nonresidential structures because of their shorter recovery periods (27.5 years versus up to 39 years).

Table 3. Marginal Effective Tax Rates For Mixed-Financed Investments by Broad Asset Type and Sector

Asset Type	2017	2018	2024	2027
Corporate				
Equipment	10.2%	2.3%	8.3%	15.9%
Intangible	-11.7%	-11.7%	-1.0%	1.4%
Inventories	35.4%	25.3%	25.5%	25.6%
Land	31.8%	22.8%	23.0%	23.2%
Nonresidential Structures	31.5%	22.6%	22.9%	23.0%
Oil, Gas, Mining Structures	16.0%	12.7%	13.0%	13.1%
Public Utility Structures	10.1%	2.3%	8.3%	16.0%
Residential Structures	24.6%	18.2%	18.4%	18.6%
Noncorporate				
Equipment	8.0%	-5.7%	3.7%	20.2%
Intangible	-15.6%	-19.8%	-3.3%	6.2%
Inventories	36.4%	28.5%	28.6%	36.6%
Land	32.5%	25.1%	25.2%	32.7%
Nonresidential Structures	32.2%	24.9%	25.0%	32.4%
Oil, Gas, Mining Structures	12.6%	9.3%	9.4%	12.9%

[5] Mixed-financed investments have debt shares of 32% for the corporate sector, 23% for the noncorporate sector, and 42% for owner-occupied housing. Corporate and noncorporate debt shares come from Tracy Foertsch, *U.S. Cost of Capital Model Methodology*, U.S. Department of the Treasury, Technical Paper 10, May 2022, https://home.treasury.gov/system/files/131/TP-10.pdf.

Asset Type	2017	2018	2024	2027
Public Utility Structures	7.8%	-5.7%	3.6%	20.1%
Residential Structures	24.5%	18.6%	18.6%	24.7%
Owner-Occupied Housing				
Land	-9.5%	-2.3%	-2.3%	-9.5%
Residential Structures	-9.5%	-2.3%	-2.3%	-9.5%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

METRs For Equity-Financed and Debt-Financed Investments

Table 4 reports the METRs for all-equity-financed investments, eliminating the influence of the benefit of deducting interest. For 2018, when full expensing was in place, the estimates for equipment, several intangibles, and public utility structures in the corporate sector reflect only the tax on dividends and capital gains (8.0%). This tax is relatively small because the tax rates on dividends and capital gains are lower (around 20%), a large fraction of this income is in retirement accounts that are not subject to tax, a large fraction is held by foreign shareholders who are not taxed on capital gains, and approximately half of capital gains are never realized. The tax rates do not account for any taxes paid by foreign shareholders to their own governments. The METRs for these assets in the noncorporate sector are zero in 2018.

Table 4. Marginal Effective Tax Rates on Equity-Financed Investment

Asset Type	2017	2018	2024	2027
Corporate				
Equipment	20.0%	8.0%	13.3%	20.3%
Intangible	2.7%	-2.3%	6.1%	7.2%
Advertising	8.0%	8.0%	8.0%	8.0%
Firm Specific Human Capital	8.0%	8.0%	8.0%	8.0%
Prepackaged Software	32.1%	8.0%	19.8%	32.7%
Custom Software	23.7%	8.0%	15.2%	24.1%
R&D	-55.7%	-30.1%	-5.3%	-5.3%
Entertainment	37.3%	25.9%	25.9%	25.9%
Inventories	41.7%	29.2%	29.2%	29.2%
Land	39.3%	27.3%	27.3%	27.3%
Nonresidential Structures	39%	27.1%	27.1%	27.1%
Oil, Gas, Mining Structures	24.2%	17.3%	17.3%	17.3%
Public Utility Structures	20.5%	8.0%	13.6%	20.8%
Residential Structures	33.7%	23.3%	23.3%	23.3%

Asset Type	2017	2018	2024	2027
Noncorporate				
Equipment	15.0%	0.0%	8.8%	26.1%
Intangible	-5.0%	-11.5%	3.3%	14.0%
Advertising	0.0%	0.0%	0.0%	0.0%
Firm Specific Human Capital	0.0%	0.0%	0.0%	0%
Prepackaged Software	29.8%	0.0%	18.9%	46.0%
Custom Software	19.7%	0.0%	11.8%	32.9%
R&D	-76.8%	-45.0%	-5.4%	6.5%
Entertainment	35.6%	27.4%	27.4%	35.7%
Inventories	40.7%	31.9%	31.9%	40.7%
Land	37.7%	29.2%	29.2%	37.7%
Nonresidential Structures	37.3%	28.9%	28.9%	37.4%
Oil, Gas, Mining Structures	18.6%	13.7%	13.7%	18.6%
Public Utility	15.3%	0.0%	9.0%	26.6%
Residential Structures	30.9%	23.4%	23.4%	30.9%
Owner-Occupied Housing				
Land	-2.2%	-0.2%	-0.2%	-2.2%
Residential Structures	-2.2%	-0.2%	-0.2%	-2.2%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Land in the corporate sector is subject to the statutory rate at the corporate level and to additional tax on dividends and capital gains at the shareholder level. Because the corporate rate was reduced permanently from 34% (the 35% rate reduced by the production activities deduction) to 21%, corporate sector land is subject to lower tax after 2017 (27.3% versus 39.3%). The increase in the METR for land above the statutory rate is due to shareholder-level taxes on dividends and capital gains. That tax is reduced somewhat compared to assets eligible for full expensing, because the corporate tax is effectively deducted before dividends and capital gains taxes. For example, the dividend and capital gains tax for assets eligible for full expensing in 2018 was 8.0%, but was 6.3% (8% times 0.79) for land. Land in the noncorporate sector is taxed at 29.2% in 2024 and 2018, reflecting the statutory income tax rate plus payroll taxes, reduced by the passthrough deduction. The rate is higher in 2017 and 2027, when the passthrough deduction and slightly lower income tax rates no longer apply.

Inventories are taxed at a slightly higher rate than land because of the use of first-in, first-out inventory accounting, which results in some tax on the inflation portion of the return.

Nonresidential structures are taxed, in the aggregate, at close to the statutory tax rate, but residential structures are taxed at a somewhat lower rate because of their shorter recovery period.

Prepackaged software has the highest tax rate of any asset type in 2027 because of its high estimated depreciation rate, indicating that tax depreciation is slower than economic depreciation.

Other calculations reflect the effects of partial expensing in 2017 and 2024, and the elimination of expensing in 2027; the higher corporate tax rate in 2017, which is reduced slightly due to the

production activity deduction; and the loss of the passthrough deduction in 2017 and 2027. Even without expensing in 2027, equipment continues to have a favorable treatment, as accelerated depreciation reduces the tax rate from 27.3% to 20.3%.

R&D continues to have a negative tax rate because of the research credit and owner-occupied housing because of the deduction for property taxes.

Table 5 shows the METRs for debt-financed investment. Most of the METRs are subject to negative tax rates. Caution should be exercised in interpreting very large negative tax rates, which generally mean that the pretax return is close to zero. The tax rate is the pretax return (P) minus the after-tax return (R), divided by the pretax return, or 1-R/P. As P approaches zero, the tax rate approaches negative infinity.

Table 5. Marginal Effective Tax Rates on Debt-Financed Investment

Asset Type	2017	2018	2024	2027
Corporate				
Equipment	-42.9%	-20.7%	-11.6%	-1.3%
Intangible	-119.5%	-49.6%	-31.0%	-26.7%
Advertising	-67.9%	-20.7%	-18.9%	-18.0%
Firm-Specific Human Capital	-67.9%	-20.7%	-18.9%	-18.0%
Prepackaged Software	-12.8%	-20.7%	-1.2%	18.0%
Custom Software	-32.1%	-20.7%	-8.3%	5.3%
R&D	-383.0%	-136.1%	-69.9%	-68.5%
Entertainment	-48.2%	5.2%	6.5%	7.2%
Inventories	2.0%	9.8%	11.0%	11.7%
Land	-10.8%	4.7%	6.1%	6.8%
Nonresidential Structures	-8.1%	5.0%	6.4%	7.1%
Oil, Gas, Mining Structures	-26.5%	-5.0%	-3.9%	-3.1%
Public Utility Structures	-47.1%	-20.7%	-12.3%	-2.9%
Residential Structures	-25.0%	-2.2%	-0.7%	0.1%
Noncorporate				
Equipment	-53.8%	-47.9%	-32.8%	-27.8%
Intangible	-149.5%	-89.0%	-55.6%	-68.9%
Advertising	-86.5%	-47.9%	-47.1%	-18.0%
Firm-Specific Human Capital	-86.5%	-47.9%	-47.1%	-81.7%
Prepackaged Software	-16.6%	-47.9%	-13.6%	16.9%
Custom Software	-40.1%	-47.9%	-26.4%	-9.7%
R&D	-556.0%	-252.8%	-103.4%	-133.6%
Entertainment	-65.3%	-1.9%	-1.4%	-5.8%
Inventories	-0.1%	4.6%	5.1%	2.2%
Land	-16.2%	-4.7%	-4.1%	-13.2%
Nonresidential Structures	-12.1%	-3.3%	-2.8%	-9.4%

Asset Type	2017	2018	2024	2027
Oil, Gas, Mining Structures	-36.6%	-20.8%	-20.2%	-32.6%
Public Utility Structures	-59.9%	-47.9%	-35.0%	-36.3%
Residential Structures	-33.0%	-16.0%	-15.3%	-29.5%
Owner-Occupied Housing				
Land	-28.0%	-6.8%	-6.8%	-28.0%
Residential Structures	-28.0%	-6.8%	-6.8%	-28.0%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Unlike the tax rates on equity-financed investments, tax rates on debt-financed investments are also affected by the different interest limit ceilings for the corporate and noncorporate sectors. These limits create differences across regimes, as illustrated by the tax rates for land, which are not affected by cost recovery. For example, comparing 2018 to 2024, the tax rate for land rises in the corporate sector and becomes a smaller negative in the noncorporate sector, even though the statutory tax rates are the same. Similarly, the rate is a smaller negative in 2027 compared to 2017 in the noncorporate sector when statutory rates are the same.

The tax rate for land only differs between 2024 and 2018 because of the less restrictive interest limitation under EBITDA.

The benefit of debt versus equity finance depends on the effective statutory tax rate.

Economy-Wide and Sector-Wide METRs

Table 6 aggregates all of the assets in the economy to determine the overall tax rate. This is the tax rate that would reflect the effect of taxes on the rate of return on investment in the overall economy. Although the overall rate including land is reported, the appropriate rate for considering investment is the one excluding land because land is not reproducible. **Table 6** also reports measures excluding land and inventories, since the size of inventories is not very sensitive to the rate of return because inventories are short-lived. It also reports measures excluding advertising and investments in human capital.

Table 6. Economy-Wide and Sector-Wide METRs

Asset Type	2017	2018	2024	2027
Economy Wide				
All Assets	16.0%	11.7%	12.8%	15.9%
All Assets Excluding Land	11.1%	7.4%	9.4%	11.4%
All Assets Excluding Land and inventories	9.1%	6.0%	8.2%	10.1%
All Assets Excluding Land, Inventories, Advertising, and Human Capital	9.5%	6.0%	8.4%	10.4%
Corporate				
All Assets	20.1%	12.3%	15.1%	17.5%
All Assets Excluding Land	18.4%	10.7%	14.0%	16.7%
All Assets Excluding Land and Inventories	16.0%	8.8%	12.6%	15.6%

Asset Type	2017	2018	2024	2027
All Assets Excluding Land, Inventories, Advertising, and Human Capital	17.3%	9.3%	13.3%	16.5%
Noncorporate				
All Assets	29.0%	21.4%	22.2%	30.2%
All Assets Excluding Land	22.4%	14.5%	16.8%	25.7%
All Assets Excluding Land and Inventories	21.1%	13.2%	15.7%	24.7%
All Assets Excluding Land, Inventories, Advertising, and Human Capital	21.6%	13.6%	16.1%	25.2%
Owner-Occupied Housing				
All Assets	-9.5%	-2.3%	-2.3%	-9.5%
All Assets Excluding Land	-9.5%	-2.3%	-2.3%	-9.5%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

The current economy-wide tax rate on investment, excluding land, is 9.4%, slightly higher than the 7.4% rate for the most generous set of rules in 2018. The highest tax rate is 11.4% in 2027, slightly above the rate of 11.1% in 2017. These results suggest that the TCJA's permanent provisions a modest effect on the aggregate METR in the economy. These rates reflect, in part, the negative tax rate on owner-occupied housing.

For the corporate sector, the same pattern of tax rates across regimes applies, with tax rates remaining lower than the pre-TCJA rates, except for 2027 when expensing expires and limits on interest deductions are in effect. These effects are offset in large part by the lower corporate statutory rate. For the noncorporate sector, the rates are highest in 2027 and the largest permanent effect of the TCJA is on the tax incentives for noncorporate investment. Owner-occupied housing is subject to negative tax rates that are larger during the years the TCJA is not in effect.

Sector-wide noncorporate assets are subject to higher taxes than sector-wide corporate taxes for several reasons. Although the rates themselves are similar, there is less debt finance in the noncorporate sector, 23% as compared to 32%. In addition, assets in the noncorporate sector are less likely to receive favorable treatment from cost recovery and credits. The distribution of assets between the corporate and noncorporate sectors is shown in **Table 7**. Notably, the noncorporate sector has a smaller share of intangible assets, which are generally taxed more favorably, and a larger share of residential structures, which are taxed at higher rates.

Table 7. Percentage Distribution of Business Assets Other Than Land by Broad Category

Asset Type	All Business Assets	Corporate Assets	Noncorporate Assets
Equipment	19.1%	21.5%	17.2%
Intangible	13.2%	21.2%	7.1%
Inventories	7.8%	9.7%	6.3%
Nonresidential Structures	28.2%	31.6%	25.6%
Oil, Gas, Mining Structures	3.8%	5.4%	2.6%
Public Utility	8.3%	9.7%	7.2%
Residential Structures	19.7%	0.9%	33.9%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Effects on Incentives to Invest

The effect of tax changes on investment incentives is based on changes in the user cost of capital, also called the rental price of capital. This measure reflects all the costs of using depreciable assets: the after-tax rate of return, which is assumed to be common to all assets; taxes; and the decline in value as the asset is used up, or economic depreciation. This measure could be thought of as the price that would have to be paid to rent the asset and is the price of capital inputs in the production process in the same way that wages are the price of labor inputs.

Assets vary substantially in their depreciation rates, with equipment and software depreciating more quickly than buildings. Therefore, a change in the taxes paid for a prospective investment will have a smaller percentage change on the user cost of short-lived assets than long-lived ones. That is, more of the price of using short-lived assets is that they depreciate quickly.

Table 8 reports the estimated user costs of capital for different asset classes after the TCJA provisions expire in 2027 and compares them to costs under previous regimes: pre-TCJA (2017), the most generous provisions (2018), and current law (2024). The table excludes land and inventories. Inventories tend to be held for a short time, and their rate of return is a small part of acquiring and selling inventories so that any change is negligible, while land is not reproducible. The table looks at percentage changes from 2027, to determine how the effects of the expiring TCJA provisions compare to both the pre-TCJA regime and the temporary provisions. Such a comparison may be helpful, as it provides a menu of options or tax regimes that could be explored and their impacts relative to expiration of TJCA provisions in 2027.

These user costs reflect the effects of assuming the features of regime changes are permanent at the time the investment is made, which is important for effects that occur in future years, such as changing statutory tax rates, rather than up-front incentives such as expensing.

Table 8. Percentage Change in the User Cost of Capital from Expiration of Tax Provisions

Asset Type	User Cost 2027	Percentage Change From 2017	Percentage Change From 2018	Percentage Change From 2024
Corporate				
Equipment	0.1924%	2.2%	4.9%	2.8%
Intangible	0.3605%	1.9%	1.8%	0.3%
Advertising	0.6574%	0.5%	0.0%	0.0%
Firm Specific Human Capital	0.4574%	0.7%	0.0%	0.0%
Prepackaged Software	0.946%	0.6%	2.9%	1.7%
Custom Software	0.4513%	1.0%	2.9%	1.7%
R&D	0.2226%	6.1%	4.6%	0.0%
Entertainment	0.2346%	-3.5%	0.1%	0.0%
Nonresidential Structures	0.099%	-8.4%	0.2%	0.0%
Oil, Gas, Mining Structures	0.1092%	-2.0%	0.1%	0.0%
Public Utility	0.0888%	5.1%	11.6%	6.5%
Residential Structures	0.0825%	-6.4%	0.2%	0.0%
Noncorporate				
Equipment	0.1985%	5.1%	9.8%	6.7%
Intangible	0.3654%	3.2%	3.7%	1.5%
Advertising	0.6534%	0.0%	-0.2%	-0.2%
Firm Specific Human Capital	0.4534%	0.0%	-0.3%	-0.3%
Prepackaged Software	0.8089%	3.0%	6.0%	4.2%
Custom Software	0.4617%	3.1%	5.9%	4.1%
R&D	0.2299%	9.8%	0.2%	2.1%
Entertainment	0.2468%	0.1%	3.4%	3.3%
Nonresidential Structures	0.1119%	0.2%	8.1%	8.0%
Oil, Gas, Mining Structures	0.1113%	0.2%	2.4%	2.3%
Public Utility	0.0946%	11.3%	22.7%	14.8%
Residential Structures	0.0907%	0.2%	6.7%	6.7%
Owner-Occupied Housing				
Residential Structures	0.0631%	0.0%	-5.4%	-5.4%
Economy Wide	0.1234%	0.5%	2.1%	0.9%
Economy Wide Excluding Owner-Occupied Housing	0.1609%	0.7%	4.3%	2.6%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Equipment

The overall corporate equipment category has a user cost 2.2% higher under the permanent provisions in 2027 compared to the pre-TCJA 2017 law. The loss of partial expensing is partially offset in the corporate sector by the lower corporate tax rate. Compared to the most generous regime in 2018, the corporate user cost is projected to be 4.9% higher, which is largely the effect of moving to 100% expensing to no expensing. For the noncorporate sector, the user cost is 5.1% higher in 2027 than in pre-TCJA, largely reflecting the loss of partial expensing. The user cost is 9.8% higher in 2027 compared to the most generous 2018 regime, reflecting the effect of expensing and the higher statutory rates. The effect compared to current law (2024) is smaller than compared to 2018, because expensing was reduced by TCJA and remains so under current law: 2.8% for the corporate sector and 6.7% for the noncorporate sector.

Intangibles

R&D, one of the most significant intangible assets, has smaller subsidies under the permanent TCJA provisions (i.e., after temporary provisions expire in 2027) than pre-TCJA, because it was favored in prior law with 100% expensing and because the value of the interest deduction was greater with a higher tax. The percentage change in the user cost for the corporate sector, where most R&D occurs, is 6.1% compared to pre-TCJA law. Most of that difference is due to the loss of expensing. Compared with the most generous regime in 2018, the increase was 5.7%, which is smaller than the difference from 2017 primarily because the higher corporate rate in 2017 led to a greater benefit for debt finance.

Of the other intangibles, advertising and investment in human capital, which continue to be expensed, have small differences across all of the regimes. Software, which loses expensing, has a similar pattern of effects as equipment. Entertainment, with depreciation close to economic depreciation, benefits from the rate reduction in the corporate sector with a decline in the user cost of -3.5% compared to pre-TCJA law. These benefits do not appear in the noncorporate sector because of the expiration of the individual tax cuts.

Business Structures

Nonresidential corporate structure, for which tax depreciation is close to economic depreciation and where no change was made in the TCJA, is primarily affected by the corporate rate reduction. These assets have a significant percentage change in user cost comparing 2027 to pre-TCJA law—8.4% in the corporate sector. These effects do not appear for noncorporate nonresidential structures because of the expiration of tax rate reductions. A similar pattern appears for residential structures, with effects somewhat smaller because of the more generous depreciation.

Public utility structures follow a pattern similar to equipment and have some of the largest changes as well, because they are affected by both statutory rate changes and loss of expensing. Unlike equipment, they tend to be relatively long lived so that changes in the rate of return cause a larger percentage change in the user cost. The effects are particularly pronounced in the noncorporate sector, comparing 2027 to pre-TCJA law, because of the expiration of the rate cuts in the noncorporate sector and the loss of partial expensing.

Oil and gas and mining structures, although relatively long lived, have smaller effects from rate changes because much of their cost is expensed.

Owner-Occupied Housing

Incentives for owner-occupied housing were reduced by the temporary TCJA provisions that reduced itemization in 2018 and 2024, which resulted in about a 5% change in the user cost.

Overall Effect on Investment Incentives

The effects of the tax revisions on investment in the economy depend on how the tax change affected the user cost of capital and the response of investment to the change (the elasticity). The elasticity, which is the opposite sign to the percentage change in user cost, is multiplied by the percentage change in user cost, to get the percentage change in investment. Most of the changes in user cost were relatively small. Overall, aggregating across all assets, the permanent effect of the TCJA on the user cost is small, an increase of 0.5% (2027 compared to 2017). Compared to the most generous provisions (and assuming they were permanent), the user cost under TCJA's permanent provisions would increase by 4.3% (2027 compared to 2018). Compared to current law, the user cost under TCJA's permanent provisions is 2.6% higher (2027 compared to 2024).

These changes suggest relatively small changes in aggregate investment. Empirical estimates of the long-run elasticity of investment with respect to user cost for business investment have generally been below one, generally between 0.3 and 0.7,[6] although a 2014 study found a higher elasticity of around 0.9.[7] Taken together, these figures imply a midpoint elasticity of around 0.6 (0.3 plus 0.9 divided by two). These estimates are for business investment. Excluding owner-occupied housing from the aggregate user cost calculation, the percentage increase between 2017 and 2027 is 0.7%. Those measures suggest a percentage decline in the business capital stock from the TCJA's permanent provisions of 0.4% at the midpoint (0.7 times an elasticity of 0.6), and in a range from 0.2% (0.7 times 0.3) to 0.6% (0.7 times 0.9). Even these effects are likely overstated because they assume a perfectly elastic supply of capital (the after-tax return is fixed). If the supply response is inelastic, part of the increased taxes will reduce the return to the suppliers of investment, leading to a lower required return and smaller effects on the user cost.

One reason that the TCJA has small effects on the user cost of capital is that the measure reduced the corporate tax rate, which provided a benefit to existing corporate assets, while eliminating expensing for equipment, software, and research, the benefits of which accrue to new investment. The reductions in the individual rates and the effective reduction from the passthrough deduction, although smaller, also primarily accrued to existing noncorporate assets.

Options

This section discusses four legislative options: no change; enacting and making permanent the 2018 provisions; enacting and making permanent the changes in The Tax Relief for American Families and Workers Act of 2024 (full expensing of equipment, software, and research, as well as basing the interest ceiling on EBITDA) while allowing the individual tax rates to expire; and, in addition to the previous scenario, making the passthrough deduction permanent. These outcomes are reported in **Table 9**.

[6] George C. Bitros and M. Ishaq Nadiri, *Elasticities of Business Investment in the U.S. and Their Policy Implications: A Disaggregate Approach to Modeling and Estimation*, July 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2999105.

[7] Nadia Dwenger, "User Cost Elasticity of Capital Revisited," *Econometrica*, vol. 81, no. 321 (January 2014), pp. 161-186.

Table 9. Percentage Change in User Cost and Business Investment From Alternative Scenarios Compared to pre-TCJA Law

Scenario	Overall User Overall	User Cost Owner-Occupied Housing	User Cost Business Investment	Change in Estimated Business Capital
No Change In Law (No Expensing, EBIT, and Individual Provisions Expire)	0.5%	0.0%	0.7%	-0.4%
Enacting Provisions of 2018 (Full Expensing and EBITDA, Retain Individual Provisions)	-1.6%	5.7%	-3.4%	2.0%
Allow Full Expensing and EBITDA, Individual Provisions Expire	-2.0%	0.0%	-2.5%	1.5%
Allow Full Expensing, EBITDA, and Passthrough Deduction, Other Individual Provisions Expire	-2.6%	0.0%	-3.2%	2.3%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Notes: Estimates of change in business capital assume a -0.6 elasticity.

In the absence of legislative change, the permanent 2027 provisions suggest a negligible change compared to pre-TCJA, with business capital user cost estimated to increase by 0.7% and business investment projected to decrease by around 0.4%, and no change for owner-occupied housing. The overall METR in the economy (excluding land) is 10.1%.

Enacting and making permanent the provisions in The Tax Relief for American Families and Workers Act of 2024 and making the individual tax changes permanent would lead to a permanent regime that is the same as 2018. The overall percentage fall in the user cost of capital compared to pre-TCJA law is -1.6%, comprising a 5.7% increase in the user cost for owner-occupied housing and a 3.4% decline in the user cost for business investment. Using an elasticity of 0.6 implies an increase in business investment of 2.0%. While some of the increase in the business capital stock might come from a decrease in owner-occupied housing investment, there is a considerable revenue loss relating to this change, which could crowd out private investment.[8] The overall METR in the economy under this scenario (excluding land) is 7.4%.

Enacting and making permanent The Tax Relief for American Families and Workers Act of 2024 would make permanent the expensing and EBITDA provisions but not the individual rate changes and other provisions. There would be no change in the owner-occupied housing user cost, but a 2.5% decline in the user cost of business capital compared to pre-TCJA law. This option implies a 1.5% increase in business capital using the midpoint elasticity of 0.6. Moreover, this change would involve a smaller loss in revenue, particularly in the long run. According to the Congressional Budget Office (CBO), the extension of the individual tax cuts would cost $3.3 trillion over 10 years, while making permanent full expensing for equipment and software would cost $0.4 trillion.[9] This change would be less favorable to buildings, but more favorable to

[8] For a brief discussion of crowding out, see Kent Smetters and Marcos Dinerstein, "Explainer: Capital Crowd Out Effects of Government Debt," Penn Wharton Budget Model, June 28, 2021, https://budgetmodel.wharton.upenn.edu/issues/2021/6/28/explainer-capital-crowd-out-effects-of-government-debt.

[9] See supplemental data for CBO, *Budgetary Outcomes Under Alternative Assumptions About Spending and Revenues*, May 8, 2024 https://www.cbo.gov/publication/60114. The costs of changes to expensing for research and limits on interest are not reported but would also be small relative to the expensing of equipment and software. The original (continued...)

equipment, software, and research. In the cases of full expensing, higher tax rates provide a benefit by increasing the value of interest deductions. However, this change would magnify the current distortions that favor these types of assets. The overall METR in the economy in this scenario (excluding land) is 7.0%.

A final option, retaining the passthrough deduction along with expensing and EBITDA, is more targeted to investment. This regime would reduce the overall user cost in the economy compared to pre-TCJA by 2.6%, comprising a 3.2% decline for business investment and no change for owner-occupied housing. Retaining the passthrough deduction is estimated to cost around $0.6 trillion over 10 years, according to CBO. The overall METR in the economy in this scenario (excluding land) is 5.8%.

Conclusion

There are three general types of distortions brought on by tax provisions that affect the allocation of capital: differences across assets within a sector, differences across sectors, and the favorable treatment of debt finance compared to equity finance.

Looking within sectors, the effective tax rate calculations for the TCJA provisions indicate that the provisions continued to favor equipment and most intangible assets over structures, a long-standing feature of the tax law, although this favoritism was somewhat reduced with the end of expensing for research in 2022, and the phaseout for equipment, software, and public utility structures by 2027.

The tax changes exacerbated a small penalty for the noncorporate sector compared to the corporate sector because of the permanent lowering of the corporate tax rate with a smaller and transitory reduction in the statutory rate for the noncorporate sector.

The favorable treatment of debt-financed investment over equity-financed investment was reduced by the corporate rate reduction and restrictions on interest deductions, both of which affect the value of the interest deduction.

Another potential distortion is the overall rate of taxes on savings in the economy. The changes comparing 2017 to 2027 were small, 11.5% compared to 11.4%.

Tax cuts are most effective in increasing investment by increasing direct investment subsidies rather than reducing tax rates, since lower tax rates cause a gain for the return to preexisting capital. However, preserving a full deduction for nominal interest while allowing expensing leads to negative effective tax rates on these investments.

revenue gain from expensing of research was projected at $0.1 trillion for five years and would rise relatively little after that as the offsetting revenue gain from deductions that would otherwise be taken increases. The gain from moving from EBIT to EBITDA appears to be around $10 million a year. See Joint Committee on Taxation, *General Explanation of P.L. 115-97*, JCS-1-18, December 20, 2018, https://www.jct.gov/publications/2018/jcs-1-18/.

Appendix. METRs by Specific Asset Type

Table A-1 provides METRs by specific asset type for the corporate sector. **Table A-2** reports METRs for noncorporate businesses and owner-occupied housing. Aside from different effective statutory taxes, these METRs differ because they have different shares of debt finance: 32% for the corporate sector, 23% for the noncorporate sector, and 42% for owner-occupied housing.[10]

The effective tax rates under each year's tax regime assume that those rules are in effect during the life of the asset. This point is primarily of concern for changes in the effective statutory tax rate (including the passthrough deduction) or changes that influence the choice to itemize deductions. The expected tax rate for an asset where there were automatic expirations built into the tax law would be different if those changes were taken into account. This issue is likely less of a concern for the corporate sector, where the tax rate was cut permanently and the other changes are largely upfront, than it is for the noncorporate and owner-occupied housing sectors, where changes sunset.

Table A-1. Marginal Effective Tax Rates by Asset Type, Corporations

Asset Type	2017	2018	2024	2027
Equipment				
Agricultural Equipment	10.0%	2.3%	8.2%	15.7%
Aircraft	6.3%	2.3%	6.6%	12.2%
Autos	17.3%	2.3%	11.6%	22.5%
Communications Equipment	6.5%	2.3%	6.7%	12.3%
Construction Machinery	8.9%	2.3%	7.7%	14.6%
Electric Transmission Equipment	14.9%	2.3%	10.5%	20.4%
Engines and Turbines	15.2%	2.3%	10.6%	20.6%
Fabricated Metal Products	8.2%	2.3%	7.4%	14%
Furniture and Fixtures	11.3%	2.3%	8.8%	16.9%
General Industrial Equipment	9.3%	2.3%	7.9%	15%
Instruments	7.9%	2.3%	7.2%	13.6%
Metal Working Machinery	10.3%	2.3%	8.3%	16%
Mining and Oilfield Machinery	12.1%	2.3%	9.2%	17.7%
Office/Computing Equipment	14.6%	2.3%	10.3%	20%
Other Electrical Equipment	14.2%	2.3%	10.1%	19.6%
Other Nonresidential Equipment	11.9%	2.3%	9.1%	17.5%
Railroad Equipment	5.8%	2.3%	6.4%	11.7%
Service Industry Machinery	13.1%	2.3%	9.6%	18.6%
Ships and Boats	8.8%	2.3%	7.7%	14.6%
Special Industrial Equipment	9.0%	2.3%	7.8%	14.7%
Trucks, Buses, and Trailers	9.8%	2.3%	8.1%	15.4%

[10] Debt shares come from Tracy Foertsch, *U.S. Cost of Capital Model Methodology*, U.S. Department of the Treasury, Technical Paper 10, May 2022, https://home.treasury.gov/system/files/131/TP-10.pdf.

Asset Type	2017	2018	2024	2027
Intangible				
Advertising	-3.4%	2.3%	2.6%	2.8%
Custom Software	14.9%	2.3%	10.4%	20.2%
Entertainment	30.2%	21.6%	21.8%	22.06%
Firm Specific Human Capital	-3.4%	2.3%	2.6%	2.8%
Prepackaged Software	24.8%	2.3%	15.5%	29.6%
R&D	-58.1%	-46.1%	-16.2%	-16.0%
Inventories				
Inventories	35.4%	25.3%	25.5%	25.6%
Land				
Land	31.8%	22.8%	23.1%	23.2%
Nonresidential Structures				
Commercial and Health Care Structures	31.3%	22.5%	22.7%	22.9%
Farm Structures	22.4%	16.7%	17.0%	17.1%
Manufacturing Structures	33.2%	23.8%	24.0%	24.1%
Other Structures	32.1%	23.0%	23.2%	23.3%
Oil, Gas, Mining Structures				
Mining Structures	18.9%	12.5%	14.7%	14.9%
Oil & Gas Structures	15.1%	12.4%	12.5%	12.6%
Public Utility				
Public Utility Structures	10.1%	2.3%	8.3%	16%
Residential Structures				
Residential Structures	24.6%	18.2%	18.4%	18.6%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

Table A-2. Marginal Effective Tax Rates by Asset Type, Noncorporate Sector and Owner-Occupied Housing

Asset Type	2017	2018	2024	2027
Noncorporate				
Equipment				
Agricultural Equipment	7.7%	-5.7%	3.5%	19.9%
Aircraft	3.4%	-5.7%	0.9%	13.1%
Autos	16.2%	-5.7%	8.9%	31.9%
Communications Equipment	3.6%	-5.7%	1.0%	13.4%
Construction Machinery	6.4%	-5.7%	2.7%	17.9%
Electric Transmission Equipment	13.4%	-5.7%	7.1%	28.1%
Engines and Turbines	13.8%	-5.7%	7.3%	28.6%

Asset Type	2017	2018	2024	2027
Fabricated Metal Products	5.6%	-5.7%	2.2%	16.6%
Furniture and Fixtures	9.3%	-5.7%	4.5%	22.2%
General Industrial Equipment	6.9%	-5.7%	3.0%	18.6%
Instruments	5.2%	-5.7%	2.0%	16%
Metal Working Machinery	8.1%	-5.7%	3.7%	20.4%
Mining and Oilfield Machinery	10.2%	-5.7%	5.0%	23.6%
Office/Computing Equipment	13.1%	-5.7%	6.9%	27.7%
Other Electrical Equipment	12.7%	-5.7%	6.6%	27.1%
Other Nonresidential Equipment	10.0%	-5.7%	4.9%	23.3%
Railroad Equipment	2.8%	-5.7%	0.6%	12%
Service Industry Machinery	11.4%	-5.7%	5.7%	25.2%
Ships and Boats	6.3%	-5.7%	2.7%	17.7%
Special Industrial Equipment	6.5%	-5.7%	2.8%	18.1%
Trucks, Buses, and Trailers	7.5%	-5.7%	3.4%	19.5%
Intangible				
Advertising	-8.3%	-5.7%	-5.7%	-8.1%
Custom Software	13.5%	-5.7%	7.1%	28.2%
Entertainment	30.8%	23.7%	23.7%	31.0%
Firm Specific Human Capital	-8.3%	-5.7%	-5.7%	-8.1%
Prepackaged Software	24.8%	-5.7%	14.8%	42.6%
R&D	-66.6%	-60.9%	-14.9%	-4.2%
Inventories				
Inventories	36.4%	28.5%	28.6%	36.6%
Land				
Land	32.5%	25.1%	25.2%	32.7%
Nonresidential Structures				
Commercial and Health Care Structures	32.0%	24.7%	24.8%	32.2%
Farm Structures	22.0%	16.5%	16.6%	22.3%
Manufacturing Structures	34.1%	26.5%	26.5%	34.3%
Other Structures	32.8%	25.4%	25.4%	33%
Oil, Gas, Mining Structures				
Oil & Gas Structures	12.6%	9.5%	9.4%	12.9%
Public Utility				
Public Utility Structures	7.8%	-5.7%	3.6%	20.1%
Residential Structures				
Residential Structures	24.5%	18.6%	18.6%	24.7%
Owner-Occupied Housing				

Asset Type	2017	2018	2024	2027
Land	-9.5%	-2.3%	-2.3%	-9.5%
Residential Structures	-9.5%	-2.3%	-2.3%	-9.5%

Source: CRS calculations based on CRS Report WMR10005, *The CRS Model for Estimating Marginal Effective Tax Rates on New Investment*, by Mark P. Keightley and Jane G. Gravelle.

There is a common pattern across all regimes: the highest tax rates apply to inventories, land, entertainment, and certain nonresidential structures (primarily buildings). The lowest rates apply to certain intangibles, notably research and development, as well as oil and gas and mining, equipment, and public utility structures. These differences reflect cost recovery and, in the case of R&D, the research tax credit. This effect is generally most pronounced in the 2018 regime, when equipment, software, and public utility structures are eligible for full expensing. The effective tax rate is negative for these assets as well as some other intangible assets.

The negative effective tax rate arises from the benefits of debt financing. When assets are taxed at close to the statutory rate, as is the case for land, inventories, and nonresidential buildings, these tax rates are positive and lower with lower statutory rates. When assets are expensed, as in the case of equipment and software in 2018, research in 2017 and 2018, and advertising and human capital investments, tax rates become negative (a tax subsidy) and the subsidy is larger with higher statutory tax rates.

And, as can be seen with R&D, advertising, and investment in human capital—which are expensed in 2017 as well as 2018—the negative rates are largest in absolute value during the 2017 regime, because the corporate statutory rate is higher and the effective noncorporate rate is higher because of the lack of the passthrough deduction and slightly higher individual rates. The rates on R&D are higher in 2024 and 2027 when R&D expenses are recovered over five years. The tax rates on equipment, software, and public utility structures are higher in the 2024 and 2017 regimes when only partial expensing is allowed, and highest in the 2027 regime when no expensing is allowed. There is also significant variation across different types of equipment in years when full expensing is not allowed, especially in 2027, since assets with different durabilities (i.e., different economic depreciation rates) are recovered over the same period of time, usually five or seven years.

Tax rates are higher in the noncorporate sector than the corporate sector for most assets because of the higher individual statutory rates, which more than offset in individual tax on capital gains and dividends. However, when assets are expensed, tax rates become negative, providing a subsidy, and that subsidy is higher in the noncorporate sector because of the benefit of higher tax rates for interest deductions. Partial expensing for equipment and software at the levels in 2017 and 2024 reduces the discrepancy between corporate and noncorporate tax rates. The difference between noncorporate and corporate tax rates is most pronounced in general in 2027, where there is the greatest discrepancy between statutory tax rates and expensing ends for most assets.

The difference between the tax rates for land (both corporate and noncorporate) in 2024 and 2027 compared to 2018 is attributable to the interest limit that applies using EBIDTA in 2018, compared to using EBIT in 2024 and 2027.

Negative tax rates are also seen for owner-occupied housing. Those rates arise because imputed rent on owner-occupied housing is not taxed, but deductions are still allowed for property taxes and mortgage interest. The negative rates are higher in absolute value (larger subsidies) in 2017 before the provisions that reduced the numbers of itemizers and limited the deduction of property taxes and mortgage interest were in effect, and in 2027 after those provisions expire.

Large negative tax rates are less meaningful than positive tax rates in their effect on the required pretax return on capital because of the way tax rates are measured. For example, if the required after-tax return is 5%, a positive 50% tax rate will increase the required return to 10% (0.05/(1-0.5)), but a negative 50% tax rate will reduce the return to 4% (0.05/(1.5)). A negative tax rate means the pretax return is lower than the after-tax return. As the pretax return approaches zero, the effective tax rate approaches negative infinity.

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