

Economic Effects of the Tax Cuts and Jobs Act

April 7, 2025

Congressional Research Service

<https://crsreports.congress.gov>

R48485



R48485

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The 2017 tax cuts (P.L. 115-97), popularly referred to as the Tax Cuts and Jobs Act (TCJA), made significant changes to the federal tax system, including reducing taxes on corporations and—to a lesser extent—pass-through businesses. The act also reduced individual tax rates, nearly doubled the standard deduction, capped the state and local tax (SALT) deduction at \$10,000, and introduced other significant changes.

Governmental and private organizations estimated a range of increases in output as a result of this law, with conventional macroeconomic models projecting an increase in gross domestic product (GDP) of 0.3% to 0.7% over 10 years; other models sometimes estimated larger effects.

Some studies have used data gathered after the TCJA's enactment to estimate its economic effects, particularly on investment. This report reviews these empirical studies of the TCJA and finds that as a whole, they do not demonstrate significant effects of the TCJA on the economy.

These studies use a difference-in-differences approach (or a related method with fixed effects) to estimate the effects of a policy change by comparing taxpayers with different exposure to tax cuts. The value of difference-in-differences or fixed effects econometric studies of the TCJA depends on a number of factors, including the validity of the control group (which should have prior parallel growth trends with the treatment group), the proper specification of complex tax terms, internal consistency, and the ability to generalize the studies' results to all firms. Moreover, the results should pass a test of reasonableness in the face of observed, real-world economic changes. Concerns about the validity of these assumptions in most of the TCJA studies may limit the ability to draw conclusions from their findings.

Three of the seven studies reviewed (Kumar, Crawford and Makarian, and Beyer et al.) did not address parallel growth trends. The divergence of growth in the control and treatment group was likely the cause of the large estimated increases in U.S. corporate investment based on comparisons with Canadian firms in the Crawford and Makarian study.

A study of corporate investment by Chodorow-Reich et al. used the difference-in-differences method based on different exposures to the corporate tax changes to estimate an increase in corporate investment of 10.2% by 2019. A major reservation about this study is that the results are too large to be consistent with observed growth in aggregate data in corporate investment. This large effect could potentially be traced to mismeasurement of the tax terms, which would reduce the authors' estimate to 4.5%, and even lower if interest rates rise in response to increased investment demand and higher government deficits. (Whether these effects would be statistically significant is unknown.)

A study of corporate investment by Kennedy et al. used a difference-in-differences method comparing C corporations (which are subject to the corporate tax) with S corporations (which are taxed under the individual system) to estimate an increase in corporate investment of 8.2%, with a 10% increase in equipment investment. They also estimated that half of the corporate tax cuts accrued to the highest-salaried employees of the corporations. These investment effects are also too large to reconcile with observed growth and may arise from selection problems with the study's tax measure, which did not account for the value of depreciation and interest deductions. The distribution of the tax cut may reflect a difference in prior trends and income-shifting activities.

The remaining two studies (Goodman et al. and Albertus et al.) did not appear to have substantial underlying methodological issues. Both papers found no effects of the TCJA on the economy.

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Introduction

The 2017 tax cuts (P.L. 115-97), popularly referred to as the Tax Cuts and Jobs Act (TCJA), made significant changes to the tax system, especially regarding the taxation of investment returns. While the legislation was under consideration, debate focused on the economic effects of these changes, with proponents predicting significant increases in output and investment. Numerous governmental and private organizations estimated a range of increases in output (i.e., GDP), with conventional macroeconomic models projecting an output increase of 0.3% to 0.7%, and with other models sometimes estimating larger effects.

A number of studies have used data gathered since the TCJA's enactment to estimate its effects, particularly on investment.

Initially, economists must rely on economic models to project the effects of a policy. Subsequently, data become available and researchers attempt to find data that can be used to measure the effects. This report first summarizes the original projections of the effects and the features of the different models. Next, the report reviews studies that rely on data after the provisions were in effect. Because of the time lags in obtaining data, analyzing it, and proceeding to publication, these studies are largely working papers. They are also limited in the years data are available—2018 and 2019—because the COVID-19 pandemic was a major disruption to the economy that makes it difficult to use years after 2019.

Some of the studies of post-TCJA data may reflect differences in growth that existed prior to the TCJA, and the findings may not be due to the tax changes. Some of the studies reporting the largest effects accounted for similar growth trends but have methodological flaws in measuring tax changes. After accounting for such flaws, the literature as a whole does not demonstrate significant effects of the Tax Cuts and Jobs Act on the economy.

Major Provisions of the Tax Cuts and Jobs Act

The TCJA made changes to individual taxes, corporate taxes, and general features of business taxes, such as cost recovery. Overall, the Joint Committee on Taxation (JCT) projected a revenue loss of approximately \$1.5 trillion over the 10-year budget window.

Table 1 lists the major income tax provisions of the TCJA, with a negative sign denoting provisions expected to reduce the deficit (i.e., increase revenues).¹ The first seven items affect individual taxes and are scheduled to expire after 2025, except for the indexing provision. The TCJA typically reduced individual tax rates by about 3 percentage points, with the top rate reduced from 39.6% to 37%. It indexed brackets and other features of the tax code to the chained consumer price index (CPI), which leads to smaller yearly bracket increases than the unchained CPI. The pass-through deduction allowed a reduction of 20% from taxable business income taxed under the individual income tax. The deduction is phased out for some (but not all) higher-income individuals. The loss limit prevented business losses in excess of \$500,000 for joint returns (\$250,000 otherwise) from offsetting other taxable income. Increases in the standard deduction and the child credit largely offset the repeal of personal exemptions. Itemized deductions were generally limited, primarily through a \$10,000 cap on the deduction of state and local taxes, although the specific restrictions imposed by the Pease limitation were repealed. The income

¹ For a full description and complete revenue table, see CRS Report R45092, *The 2017 Tax Revision (P.L. 115-97): Comparison to 2017 Tax Law*, coordinated by Molly F. Sherlock and Donald J. Marples.

exemptions for the alternative minimum tax were increased, primarily benefitting higher-income taxpayers.

Table 1. Major Income Tax Provisions of the TCJA and Estimated Effect on Revenues

Billions of dollars

Provision	FY2018-FY2027 Estimated Revenue Loss (-) or Gain (+)
Individual rate cuts	-\$1,214.2
Index tax brackets and some deductions for inflation using chained CPI	\$133.6
20% deduction for pass-through business income	-\$414.5
Limit on business losses that can offset other income	-\$149.7
Increase in standard deduction and child credit; elimination of personal exemptions	-\$52.5
Changes to itemized deductions, including \$10,000 limit for state and local taxes	\$670.6
Increased exemptions for alternative individual minimum tax	-\$637.1
Corporate rate reduction from 35% to 21%	-\$1,348.5
100% expensing for depreciable assets (largely equipment)	-\$86.2
Five-year write-off for R&D (instead of 100% expensing)	\$119.7
Disallowed deduction for interest above 30% of income before taxes, interest, and depreciation (income before taxes and interest in 2022 and after)	\$253.4
Limits on net operating losses	\$201.1
Elimination of production activities deduction	\$98.0
Exemption of dividends from foreign subsidiaries	-\$223.6
Transition tax on unrepatriated income	\$338.8
Minimum tax on global intangible low tax income (GILTI)	\$112.4
Deduction for foreign derived intangible income (FDII)	-\$63.7
Base erosion tax	\$149.6

Source: 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/>.

Notes: Table includes all income tax provisions with an estimated revenue effect of \$50 billion or more. Income tax provisions include taxes on corporate income, pass-through business income, and individual income, but do not include taxes on estates or gifts.

The next five provisions affected business income, and all but expensing were permanent. The TCJA reduced the corporate rate from 35% to 21%. Other provisions affected both corporate and pass-through businesses. The 100% expensing (bonus depreciation) provision allowed investments in qualified property (generally equipment) to be fully deducted on acquisition rather than recovered over time; prior law allowed 50% expensing, scheduled to be phased out by 2020. The expensing provision in the TCJA was scheduled to be phased out over five years beginning in 2022. The research and development (R&D) provision required R&D investments to be deducted over five years rather than being expensed, but did not take effect until 2022. The limit on interest deductions became more restrictive after 2021. Net operating losses were limited to 80% of taxable income and could not be carried back to reduce taxes in prior years. The production activities deduction—which allowed a deduction of 9% of income for qualified activities, primarily manufacturing—was repealed.

The last five provisions in **Table 1** affect the international tax system and are also permanent except for the transition tax, although the last three have higher rates and larger annual revenue effects after 2025. The TCJA replaced the international tax system, which previously imposed taxes only when income was repatriated (when dividends were paid by a foreign subsidiary to its domestic parent firm). After TCJA, dividends from foreign subsidiaries were no longer taxed. The transition tax applied to accumulated unrepatriated income (income earned by foreign subsidiaries that had not been paid as dividends), but tax payments could be spread over eight years. Instead of taxing dividends, the TCJA imposed a minimum tax on global intangible low-taxed income (GILTI) aimed at intangibles (by allowing a deduction for 10% of tangible assets meant to approximate earnings from tangible assets). The TCJA allowed a deduction for foreign derived intangible income (FDII) that aimed at income from foreign sources from intangible assets held in the United States, and was intended to create roughly equal U.S. tax treatment of assets held abroad or at home. The base erosion tax was a lower tax rate applied to an expanded base that disallowed certain deductions for payments, such as interest and royalties, to foreign subsidiaries.

Original Projections of the TCJA's Economic Effects

Government agencies, including the Congressional Budget Office (CBO) and the JCT, as well as other organizations and private forecasters, provided projections of the economic effects of the TCJA while it was under consideration or shortly after its enactment. *Economic effects* in this context refer to projections for the percentage change in GDP attributed to the TCJA's changes measured against baseline projections under prior law. The results of the original GDP projections depended partly on the type of model used, and in particular whether the model allowed for three different sources of economic effects:

- changes in aggregate demand;
- supply-side effects (changes in labor supply and investment); and
- reductions in investment through *crowding out* (as increased government debt reduces funds available for private investment).

Table 2 reports the estimated effects of the TCJA from several models for 2019, 2027, the 10-year budget period, and the longer run. The projections are grouped. The first group includes models that estimate all three effects. The next group are models that do not allow for aggregate demand effects and/or crowding out, although Barro and Furman provide estimates for crowding out with an assumed change in interest rates of 14 basis points. The JCT is listed separately because it used weighted results from three models that differ in the types of effects they covered. The “longer-run” estimate listed for Penn Wharton is the organization’s estimate for 2040, whereas the longer-run estimates for Barro and Furman reflect their long-run steady state projections (i.e., what the economy “settles into” in a more permanent fashion).

Table 2. Original Projections of the TCJA's Percentage Change on GDP

Model	2019	2027	2018-2027	Longer Run
<i>Group 1: Estimates with aggregate demand, supply-side impacts, and crowding out</i>				
CBO	0.6%	0.6%	0.7%	
Moody's Analytics	0.6%	0.4%	0.3%	
Macroeconomic Advisors	0.3%	0.2%	0.5%	

Model	2019	2027	2018-2027	Longer Run
International Monetary Fund	0.9%	-0.1%	0.6%	
Goldman Sachs	0.6%	0.7%	0.7%	
Tax Policy Center ^a	0.7%	0.0%	0.5%	
<i>Group II: Estimates without aggregate demand and/or crowding out</i>				
Tax Foundation	0.9%	2.9%	2.1%	1.7%
<i>Penn Wharton</i>				
High Return to Capital		1.1%		1.6%
Low Return to Capital		0.6%		0.7%
<i>Barro Furman</i>				
No Crowding Out		0.4%		0.9%
Crowding Out		0.2%		
<i>Group III: Joint Committee on Taxation, uses three separate models</i>				
JCT		0.1% to 0.2%	0.7%	

Source: CBO, *The Budget and Economic Outlook: 2018 to 2028*, April 2018, <https://www.cbo.gov/system/files/2019-04/53651-outlook-2.pdf>; Tax Policy Center, “What Were the Economic Effects of the Tax Cuts and Jobs Act?,” updated January 2024, <https://taxpolicycenter.org/briefing-book/how-might-tax-cuts-and-jobs-act-affect-economic-output>; Penn Wharton Budget Model, *The Tax Cuts and Jobs Act, as Reported by Conference Committee (12/15/17): Static and Dynamic Effects on the Budget and the Economy*, December 18, 2017, <https://budgetmodel.wharton.upenn.edu/issues/2017/12/18/the-tax-cuts-and-jobs-act-reported-by-conference-committee-121517-preliminary-static-and-dynamic-effects-on-the-budget-and-the-economy>; Tax Foundation, *Preliminary Details and Analysis of the Tax Cuts and Jobs Act*, December 18, 2017, <https://taxfoundation.org/research/all/federal/final-tax-cuts-and-jobs-act-details-analysis/>; Robert J. Barro and Jason Furman, “Macroeconomic Effects of the 2017 Tax Reform,” *Brookings Papers on Economic Activity* (Spring 2018), https://www.brookings.edu/wp-content/uploads/2018/03/BarroFurman_Text.pdf; and Gabriel Chodorow-Reich et al., “Lessons from the Biggest Business Tax Cut in US History,” *Journal of Economic Perspectives*, vol. 38, no. 3 (Summer 2024), pp. 61-88, <https://www.aeaweb.org/articles?id=10.1257/jep.38.3.61>.

Notes: An “a” indicates fiscal years. Blank cells indicate that a value was not reported for the given timeframe.

This table does not include estimates that focus solely on the first three years. Mertens estimates that on average, the effects reported across six short-term studies were 1.21% in the first year, 0.36% in the second year, and -0.25% in the third year.²

Generally, the initial effects are due primarily to increased aggregate demand. After 10 years, economic effects are driven more by supply-side effects and crowding out, although both are somewhat reduced by the expiration of most of the individual tax cuts and of expensing for equipment.

² Karel Mertens, *The Near Term Growth Impact of the Tax Cuts and Jobs Act*, Federal Reserve Bank of Dallas, Working Paper 1803, March 23, 2018, <https://www.dallasfed.org/-/media/documents/research/papers/2018/wp1803.pdf>.

Observations on Modeling for Original Projections

There are different types of supply-side models:

1. a basic growth model with supply-side responses;
2. an overlapping generations life cycle model; and
3. a model with a representative agent with an infinite horizon.

The Tax Foundation uses the first type of model and assumes an infinitely elastic supply of capital, which means that interest rates never go up as investment increases. The Penn Wharton model is the second type, an overlapping generations (OLG) life cycle model that assumes perfect foresight, meaning that consumers and businesses can accurately project changes in the economy and their household finances through the end of their own lives. Individuals plan labor supply and savings over their lifetimes and each year a cohort dies and a new one enters the labor force. The Barro-Furman model relies on a representative infinitely lived individual who chooses savings and labor supply over time. Both the Penn Wharton and Barro-Furman models require some assumptions to offset the increase in the budget deficit to solve the model, such as an additional policy change or an assumed increase in personal savings to offset the deficit.

Barro-Furman also provide estimates for the effects if the tax provisions are made permanent, which would increase the 2027 estimate from 0.4% to 1.2% and the long run estimate from 0.9% to 3.1%. This larger effect has supply responses from lower individual taxes and expensing of some assets. These models depend heavily on the factor substitution elasticity and share of capital input in the production function. A more detailed discussion of this assumption is provided below in the discussion of the Chodorow-Reich et al. paper.³ The Barro-Furman model also assumes that there was no bonus depreciation in prior law, although bonus depreciation was 50% in 2017. Their assumption was based on the planned expiration of bonus depreciation after 2019.

The JCT uses three different models and gives each model a different “weight” (i.e., a different level of relative importance) when reporting a single overall result. The JCT uses (1) a life cycle (OLG) model that allows only supply-side effects with a 40% weight; (2) an infinite-horizon model that allows supply-side effects and aggregate demand effects, with a 20% weight; and (3) a macroeconomic model that allows all three effects, with a 40% weight.

Two recent exercises illustrate how projections are affected by model choice. The JCT recently presented separate results for its three models of the effects of extending the expiring TCJA individual tax cuts.⁴ These do not include the full scope of the TCJA changes, as they exclude bonus depreciation and the permanent tax changes in the original law. The JCT’s macroeconomic model projected an increase in output of 0.2% over FY2025-FY2034. The life cycle model projected a 0.6% increase, and the infinite-horizon model projected an increase of 0.7%. CBO also presented estimates of the inverse policy by estimating the effects that the expiring individual income tax provisions in the TCJA have on its baseline. The projection indicates negligible effects.⁵ CBO reports an initial reduction of GDP, with a peak decline of 0.3% in 2027, but an eventual increase in GDP by 2033 of 0.08%. The average reduction in GDP is 0.1% over the budget window (FY2025-FY2034).

³ Gabriel Chodorow-Reich et al., *Tax Policy and Investment in a Global Economy*, National Bureau of Economics, Working Paper 32180, March 2024, https://www.nber.org/system/files/working_papers/w32180/w32180.pdf.

⁴ Joint Committee on Taxation (JCT), *JCT Methodology for Analyzing Macroeconomic Effects*, December 12, 2024, <https://www.jct.gov/publications/2024/jct-methodology-for-analyzing-macroeconomic-effects-2024/>.

⁵ Congressional Budget Office (CBO), *How the Expiring Individual Income Tax Provisions in the 2017 Tax Act Affect CBO’s Economic Forecast*, December 4, 2024, <https://www.cbo.gov/publication/60986>.

Projections for 2027 in **Table 2** point to the direction the economy was projected to take in the longer term, ranging from a small negative effect to an effect of slightly more than 1%, with the exception of the Tax Foundation.

None of the models conclude that the tax cut will pay for itself, which would require the tax cut to induce a large enough response that additional taxes received on the increased output would fully offset the initial revenue loss. Therefore, eventually the positive effects on output would be dominated by crowding out, and the net effect on economic output would be negative.

Subsequent Studies of the Effects of the 2017 TCJA: Overview

The initial projections of the effects of the TCJA were based on various models whose particular features affected the projections. Subsequent to the TCJA's enactment, a number of studies examined its effects based on data observed after its changes took effect. Currently, there is little research to draw from. There is a natural time lag for observation, research, and publication. The TCJA made wide-ranging changes to the tax code, rendering it difficult in some cases to examine effects in isolation. Finally, because the effects of the COVID-19 pandemic overwhelmed other forces in the economy beginning in early 2020, these papers tended to focus on 2018 and 2019. After the effects of the pandemic subside, enough time will have elapsed that observations for subsequent years may be affected by many other factors. Not only are there few papers, but these factors add to the level of difficulty for the research that was done.

Empirical studies of the effects of the TCJA have covered a wide variety of topics, including the effects on output, domestic and foreign investment, profit shifting, uses of the corporate tax reduction, debt financing choices, and a range of narrower topics. The University of North Carolina Tax Center has compiled a list of these studies.⁶ The studies reviewed in this report are ones that estimated effects on domestic investment and output.

Methods: Difference-in-Differences and Fixed Effects

These empirical papers use regression techniques, where the relationship between the outcome (dependent variable, such as investment) is estimated based on the independent variable (the tax change). This relationship will vary over the observations, and the regression estimates the average value to determine the size of the effect and the variation of observations from the average to determine if the effects are statistically meaningful.

The empirical papers reviewed here use a difference-in-differences approach (or a related method with fixed effects) to estimate the effects of a policy change by comparing taxpayers with different levels of exposure to the TCJA tax cuts. Difference-in-differences methods use panel data that follow each observation over time to estimate the effect of different exposures to the change on outcomes. For example, difference-in-differences may examine the differences in investment growth for firms with larger or smaller tax cuts. Fixed effects assign each observation in panel data a variable to capture the unobserved characteristics that do not change over time. The challenge in this exercise is to find a source of variation that is exogenous and not otherwise correlated with firm-level characteristics that influence the dependent variable.

⁶ UNC Tax Center, "The TCJA Effects Tracker," <https://tax.kenaninstitute.unc.edu/what-do-we-know-about-the-effects-of-the-tax-cuts-and-jobs-act/>.

One issue in these methods is the assumption of parallel growth trends for the control group and the impacted group. If the groups being compared were growing at different rates in the past, the difference-in-differences method is not valid, as it indicates that there may be important contributors to the dependent variable that are not accounted for in the study design.⁷ Similarly, fixed effects cannot control for different preexisting growth paths.

Some General Observations on Aggregate Data

Before turning to the specific studies, this section provides an overview of some simple observations of the economic data following the tax cut.

Studies by CRS⁸ and Gale and Haldeman at Brookings⁹ were based on early observations of data, the first examining 2018 and the second examining 2018 and 2019. Several observations were highlighted in one or both of these reviews or can be seen in the data on contributions to growth.¹⁰ GDP grew slightly faster between 2017 and 2018 than it did between 2016 and 2017 (a 0.5% increase in the annual growth rate), but not out of line with normal fluctuations. A confounding factor was the Bipartisan Budget Act of 2018 (P.L. 115-123), which increased government spending and thereby raised aggregate demand. Increased government spending was responsible for about half the increase in the growth rate from 2017 to 2018. There is no evidence of greater growth in consumer spending, which would be a source of aggregate demand changes from tax cuts. Investment grew, but the pattern of growth was inconsistent with the incentives in the TCJA, which favored structures and equipment, since most of the investment growth can be attributed to intellectual property, oil and gas investments, and public utilities.¹¹ These assets had smaller or negative effects from the TCJA.

Investment by the corporate sector, which is the topic of several of the post-TCJA studies, increased in 2018 and 2019, but did not show any significant change from the general upward trend after accounting for normal fluctuations in tangible investments (equipment and structures).

There was also no indication of growth in wages, with a slight increase in average wages and a decline in the median wage. Data indicated no change in net capital inflows. While repatriations increased due to changes in the international tax rules, they appeared to be largely used for share repurchases.

⁷ While no two groups have growth that perfectly matches each other, the differences cannot be statistically meaningful.

⁸ CRS Report R45736, *The Economic Effects of the 2017 Tax Revision: Preliminary Observations*, by Jane G. Gravelle and Donald J. Marples.

⁹ William G. Gale and Claire Haldeman, *The Tax Cuts and Jobs Act: Searching for Supply-Side Effects*, Brookings Institution, July 2021, https://www.brookings.edu/wp-content/uploads/2021/07/20210628_TPC_GaleHaldeman_TCJASupplySideEffectsReport_FINAL.pdf.

¹⁰ Bureau of Economic Analysis, National Income and Product Accounts, *Table 1.1.2. Contributions to Percent Change in Real Gross Domestic Product*, <https://www.bea.gov/products/national-income-and-product-accounts>.

¹¹ The percentage reduction in the user cost of capital, which measures the cost of investment, was largest for structures and smaller for equipment, whereas the user cost for research and development increased. There was also a small benefit for public utilities, where regulated utility structures were disallowed bonus depreciation. See Table 8 in CRS Report R48153, *Marginal Effective Tax Rates on Investment and the Expiring 2017 Tax Cuts*, by Jane G. Gravelle and Mark P. Keightley. Gale and Haldeman note the rise in oil prices as a possible factor driving investment in oil field equipment. Investment in power structures and electric transmission equipment grew at around 20% between 2017 and 2019, and was affected by increasing demand, grid improvements, and green energy investments.

These outcomes are not necessarily indicative of the TCJA's effects, given the other factors that affect output, but they suggest that there were no obvious large increases in macroeconomic variables due to the TCJA's tax changes.

Effects on Output: Individual Tax Cuts and Comparisons Across States in Kumar

The only empirical study that examined the effects of the individual tax cuts was a paper by Kumar that compares changes in jobs and output across states.¹²

Kumar's method is related to the difference-in-differences method, but does not address parallel trends. Kumar uses state- and time-fixed effects to control for preexisting differences between the states or national differences over time. Since there are no state-based microdata tax files (files with tax data for specific individuals or businesses), the study used aggregate data by state to estimate the differences in tax reductions.

Summary of Results

The tax cuts as a percentage of GDP varied widely across states, ranging from 0.3% in Oregon to 1.6% in Florida. The primary source of variation was the limit on the state and local tax deduction. Kumar's estimates indicated that the tax cut, which was 0.8% of national GDP, increased output by 1%, a multiplier of 1.25. This estimate is in a normal range for across-the-board tax cuts but is somewhat high for tax cuts that are concentrated among high-income taxpayers.¹³ His research also indicated that the source of growth was in labor participation, and not in consumption. The TCJA lowered individual tax rates, which could provide an incentive for greater labor supply.

Comments

Two issues might be raised about this study. First, there is no nationwide evidence of an increase in labor force participation or employment outside of trend following the enactment of the TCJA.¹⁴ Finding an increase may be linked to the use of state- and time-fixed effects. Use of fixed effects controls for time-invariant differences, but does not control for different trends. States with no or lower income tax rates tend to be concentrated in certain regions,¹⁵ and may differ in other ways that affect growth in labor participation rates, such as age and income. If states in which taxpayers receive larger state and local tax deductions were already slowing their relative growth in labor supply, the tax cuts would not be the cause. That is, finding a positive effect of tax cuts on labor participation may simply mean that states with smaller or nonexistent state income taxes and thus larger tax cuts had, for unrelated reasons, rising labor participation

¹² Anil Kumar, *Did the Tax Cuts and Jobs Act Create Jobs and Stimulate Growth?*, Federal Reserve Bank of Dallas, August 2023, <https://www.dallasfed.org/~media/documents/research/papers/2020/wp2001r2.pdf>.

¹³ See Charles J. Whalen and Felix Reichling, *The Fiscal Multiplier and Economic Policy Analysis in the United States*, Congressional Budget Office Working Paper 2015-02, February 2015, https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/workingpaper/49925-FiscalMultiplier_1.pdf.

¹⁴ See Federal Reserve Bank of St. Louis, FRED Economic Data, "Employment-Population Ratio," <https://fred.stlouisfed.org/series/EMRATIO>.

¹⁵ Morgan Scarboro, "State Individual Income Tax Rates and Brackets, 2017," Tax Foundation, March 19, 2017, <https://taxfoundation.org/data/all/state/state-individual-income-tax-rates-brackets-2017/>.

relative to other states on average. This difference could cause a false attribution of the increase to tax cuts.

The second issue is the possibility of increased migration to states without income taxes or with lower income taxes because of the limit on state and local tax deductions. Although there are a limited number of studies, there is some evidence that state income taxes influence where taxpayers choose to live.¹⁶ The cap on state and local tax deductions effectively increased the burden of state and local taxes, especially in higher-tax states.¹⁷ This may plausibly have caused some workers to move from high-tax states to low-tax states, but moving workers from one state to another would not cause a nationwide increase in employment.

Effects on Corporate Investment: A Comparison of Mid- and Large-Sized Corporations Subject to Tax Changes and Not Subject to Tax Changes in Chodorow-Reich et al.

Chodorow-Reich et al. study the effects of corporate tax cuts and other changes in tax incentives on corporate investment in equipment and structures.¹⁸ The study uses a difference-in-differences approach by comparing firms with a tax reduction with firms without a reduction and regressing investment changes on changes in the tax terms, reflecting tax allowances for depreciation and the statutory tax rate. The study also incorporates the effects of the change in the international tax regime (GILTI and FDII), net operating loss restrictions, and elimination of the production activities deduction, making this study one of the most comprehensive ones. The study's data are from tax returns, so it is possible to examine specific firms' tax changes in detail.

Summary of Results

The study estimated an increase in investment of 18% in the first two years for firms subject to changes in the tax rate and expensing compared to firms not subject to tax changes.¹⁹ This estimate is from a regression of the change in investment from 2015-2016 to 2018-2019. The study also estimated that foreign investment would increase substantially through the tax reductions in GILTI and that complementarity between foreign and domestic capital would also lead to increases in domestic capital. This effect raises the total increase in domestic investment from 18% to 20%.

The authors incorporate this result into a general equilibrium model that allows for other factors of production and other sectors, and estimate that overall corporate sector investment rose by

¹⁶ See Matthew J. Simonson, *Tax Deductions & Interstate Migration*, University of Minnesota, December 2022, <https://conservancy.umn.edu/server/api/core/bitstreams/60e1ab94-d506-490f-8497-a6292a2d25c3/content>, for a literature review and for estimates that indicate an effect of the limit on deductions on choice of location.

¹⁷ The amount that taxpayers deducted for state and local tax payments on their federal tax returns fell more in high-tax states than in low-tax states following the enactment of the TCJA. See CRS In Focus IF12893, *Selected Issues in Tax Reform: The Deduction for State and Local Taxes*, by Grant A. Driessen.

¹⁸ Gabriel Chodorow-Reich et al., *Tax Policy and Investment in a Global Economy*, National Bureau of Economics, Working Paper 32180, March 2024, https://www.nber.org/system/files/working_papers/w32180/w32180.pdf.

¹⁹ Updated postrevision numbers from communication with the authors.

10.2% and the total investment in nonresidential capital (both corporate and noncorporate) rose by 6.0%.

The study also estimated that the corporate capital stock would increase by 6.4% in the long run. This estimate is derived from an assumed production function (the same function used to calculate the general equilibrium change in short-run investment), not from the difference-in-differences statistical analysis. Only the estimated short-run effects are based on observed data. The authors cannot determine the long-run effects from observed data because large short-run effects could reflect either a large effect or a rapid adjustment path. The authors trace an estimated trajectory from their data-driven short-term results to their model-determined long-run results.

The estimates assume that 100% of expensing for equipment will be permanent and that firms hold that belief when making decisions, though the law phases this accelerated expensing out. (The share of expensing in prior law, 50%, was also assumed to have been permanent without the TCJA.) If expensing phases out, the increase in the corporate capital stock would be reduced to about 3.5%, assuming the phaseout was initially unexpected. If the phaseout occurs and was expected, somewhat more investment would occur in the short run.

The study also estimates that little of the static revenue loss (the decline in tax revenues before accounting for firms' investment responses) will be offset by increased revenues from higher economic output, 3% in the first 10 years. This outcome occurs partially because the increased investment reduces taxes in advance of increased taxes on profits. That is, increased investment initially increases the revenue loss because of expensing, and the gains from higher tax rates come later. Over the long run, the offset is about 20%.

In a separate regression, the study estimates that the foreign capital stock (not investment) would increase by 8% after two years for firms subject to GILTI because of estimated reductions in the user cost of foreign tangible capital due to the change in the international regime.

Comments

A number of issues can be raised about the study. The projected changes in investment in the short run are difficult to reconcile with observed growth rates in investment, as detailed below. Several corrections or alternative assumptions would reduce the estimated effects; these include assumptions or corrections regarding the user cost of public utilities, the effects of GILTI, and the deduction for interest. If all these assumptions were incorporated, the estimated investment change for the overall corporate sector would fall from 10.2% to 4.5%, and the long-run increase in the capital stock would fall from 6.4% to 2.8%. The increases would decline further if interest rates increased in response to increased investment demand and higher government deficits.

A Comparison with Observed Changes in Investment

Comparing 2017 to 2019, the real change in corporate investment in equipment and structures from the National Income and Product Accounts (NIPA) was 6.1%.²⁰ This is a smaller change than projected by the study, and implies that investment would have declined by 4.1% without the tax change. The NIPA corporate investment series includes the investment of Subchapter S firms, and there was some indication that these corporations exhibited no real growth during that period.²¹ According to IRS data, S corporations accounted for about 17% of total S and C

²⁰ The percentage changes are calculated from Bureau of Economic Analysis, Fixed Assets Tables, *Table 4.8. Chain-Type Quantity Indexes for Investment in Private Nonresidential Fixed Assets by Industry Group and Legal Form of Organization*, accessed February 8, 2025, <https://www.bea.gov/products/national-income-and-product-accounts>.

²¹ Communication with authors.

corporation assets in 2021.²² When the growth rate for non-S corporations (called C corporations) was adjusted for this difference, it increased to 7.4%, which implies that without the TCJA, investment would have decreased by 2.8%. While such a decrease was possible, it is unlikely given past growth rates. Investment in equipment and structures fell in only one year between 2011 and 2018, when it fell by 1.6% from 2015 to 2016 (for all corporations).²³

As discussed below, however, much of the growth from 2017 to 2019 was fueled by growth in power utilities and electrical transmission equipment, widening the discrepancy between actual growth and the estimated growth in other industries due to the tax revisions.

With any difference-in-differences estimation, the assumption that trends would have been the same in the absence of tax changes cannot be precisely assured. The authors present evidence of parallel prior growth trends, and their assumption of parallel growth seems plausible and not the cause of the large effects. Rather, it would appear that other factors may have influenced both the regression coefficients and the longer-run estimates. These factors are discussed in the following sections.

The Treatment of Public Utilities

An examination of growth in investment across different subcategories of assets indicates that most of the growth between 2017 and 2019 was due to nonmanufacturing assets, particularly structures. This difference can, in turn, be traced to public utilities, where electric transmission equipment grew by 18% and power structures by 21%, for a weighted average of 20%. These assets account for 16.9% of corporate investment.²⁴

Although all electric utilities were eligible for 50% bonus depreciation prior to 2018, TCJA eliminated bonus depreciation for regulated public utilities. As a result, estimates of the decreases in the user cost of capital for those assets fell by 65%, making the overall changes in the TCJA smaller.²⁵ The authors, in their robustness estimates, found that dropping public utilities did not change their estimates, which is not unexpected since the public utility industry was assigned about the same percentage change in the user cost of capital as the overall average. It does not indicate how the coefficients would have changed had a large change in investment in some observations been associated with a much smaller, rather than average, change in the user cost that reflected the loss of bonus depreciation for regulated utilities.

It is possible, however, to eliminate these assets from the aggregate data on the growth of corporate investment and then compare them with the estimated effect of the increase from the study excluding utilities. With these assets removed, growth in the remaining assets was 4.7%, and with a 10.2% increase due to the TCJA, the study implies a decline of 5.5% in the absence of

²² Internal Revenue Service, Statistics of Income, "Corporation Income Tax Returns Complete Report (Publication 16)," <https://www.irs.gov/statistics/soi-tax-stats-corporation-income-tax-returns-complete-report-publication-16>.

²³ For a discussion of the causes of this decline, see William A. Strauss and Thomas Haas, *Economic Outlook Symposium: Summary of 2016 Results and 2017 Forecasts*, Federal Reserve Bank of Chicago, Chicago Fed Letter no. 372, 2017, <https://www.chicagofed.org/publications/chicago-fed-letter/2017/372>.

²⁴ These changes were calculated from Bureau of Economic Analysis, GDP and Personal Income Tables, *Fixed Asset Tables NIPA, Table 5.5.3. Real Private Fixed Investment in Equipment by Type, Quantity Indexes, Table 5.4.3. Real Private Fixed Investment in Structures by Type, Quantity Indexes, Table 5.5.5. Private Fixed Investment in Equipment by Type, Table 4.7. Investment in Private Nonresidential Fixed Assets by Industry Group and Legal Form of Organization*, accessed February 8, 2025, <https://www.bea.gov/products/national-income-and-product-accounts>.

²⁵ Estimated from the CRS METR model at the statutory rate. See CRS Report R48277, *CRS Model Estimates of Marginal Effective Tax Rates on Investment Under Current Law*, by Mark P. Keightley and Jane G. Gravelle.

the tax cuts. These comparisons make it more difficult to reconcile the estimated effects of the TCJA with actual growth rates.

International Tax Regime

The TCJA replaced the international tax system—which taxed the dividends foreign subsidiaries paid to domestic parent companies with a credit for foreign taxes paid—with one that exempts dividends and imposes a tax on global intangible low-taxed income (GILTI). The GILTI effective tax rate is 10.5%, targeted toward intangible income after a deduction for 10% of tangible assets and reduced to half the 21% corporate rate by a deduction for half the remaining income. The modeling of this provision takes into account the deduction for intangible assets but assumes no change in the U.S. tax rate on foreign-source income that would otherwise apply without these deductions.

The study estimates that the decline in the user cost of capital for foreign investment was 7% on average for multinational firms with high foreign presence and 5% for “almost domestic” multinationals with low foreign presence.

Foreign tangible investment is roughly exempt from taxation under GILTI, since the combination of depreciation on foreign assets and the 10% exemption is probably close to the nominal flow of income on tangible investments.²⁶ However, the preexisting system, under which there was some tax (the tax on dividends less the foreign tax credit), is not modeled in the paper.²⁷ That tax regime depended on (1) the share of earnings repatriated, (2) the magnitude of foreign taxes available for credits on repatriated income, and (3) the nontaxation of unrepatriated earnings. The combination of retained, untaxed foreign earnings and foreign tax credits suggests low tax rates prior to the TCJA.

During the debate over the TCJA, there was considerable focus on the accumulation of unrepatriated earnings abroad and the incentives under the tax system at that time to repatriate and pay tax on those earnings. It is important to consider the differences between tangible income and intangible income for such purposes. For tangible investments, earnings retained abroad were largely permanently reinvested (just as retained earnings for domestic corporations are reinvested), so they would never be subject to U.S. taxes. Moreover, tangible assets were more likely to be located in countries with higher tax rates. Thus, there was likely little U.S. residual tax imposed on the return to tangible assets prior to the TCJA, while more tax fell on income from intangible investments.

The Penn Wharton Budget Model estimated that multinationals paid a residual U.S. tax of about 2% on their foreign income both before and after the TCJA.²⁸ The model does not distinguish between earnings from tangible and intangible assets. It basically found no change in the overall tax rate on foreign-source income under the TCJA and an estimated foreign tax rate of 10.7%, for a combined rate of 12.7%.

²⁶ The pretax rate of return on nonresidential structures in the corporate sector is estimated at 8% by the CRS model for estimating marginal tax rates. See CRS Report R48277, *CRS Model Estimates of Marginal Effective Tax Rates on Investment Under Current Law*, by Mark P. Keightley and Jane G. Gravelle. The estimate for equipment is lower, but equipment invested abroad does not receive the generous depreciation benefits of domestic investment. Thus, a pretax return of 8% is probably also around 8%. With 2% inflation, the nominal return would be 10%.

²⁷ The authors base their calculation on the potential expectations for a repatriation tax holiday that was subject to the same rate and foreign tax credits as GILTI.

²⁸ Penn Wharton Budget Model, *Effective Tax Rates on U.S. Multinationals' Foreign Income under Proposed Changes by House Ways and Means and the OECD*, September 28, 2021, <https://budgetmodel.wharton.upenn.edu/issues/2021/9/28/effective-tax-rates-multinationals-ways-and-means-and-oecd>.

If tangible assets had a 2% tax rate, the percentage change in the user cost of capital can be calculated using the formula $R/(1-t) + d$, where R is the after-tax rate of return, t is the effective tax rate, and d is the rate of economic depreciation. With the authors' assumption that $R = 0.06$ and $d = 0.10$, and moving from a 2% residual tax plus the foreign tax to a foreign tax only means the user cost would fall by 0.8%. That is, income from investments abroad was already subject to a U.S. residual tax that was close to zero, and that already-low tax changed little. The reduction would be smaller if tangible investments had a lower residual tax than investment overall, which is likely.

The TCJA targeted intangible income in its 10.5% minimum tax because of concerns about profit shifting.²⁹ Much of the potential tax on income retained abroad would be due to the shifting of profits of intangible assets to low- or no-tax jurisdictions, where foreign tax credits would be less likely to shield the profits from the U.S. tax, and where accumulation of unrepatriated earnings is more likely. Tangible assets are more likely to be located in higher-tax countries.

Without an effect from GILTI, the estimated change in domestic capital would decline by 10% if the coefficients on the remaining tax terms (the domestic tax rate and bonus depreciation) remained the same and were applied to the means of these variables. Chodorow-Reich et al. also included a regression that excluded profit-shifters, which are firms involved with intangible assets abroad, and that regression rendered the GILTI coefficients smaller and statistically insignificant. Excluding the GILTI terms and using the new coefficients on the other terms results in a 23% reduction in the estimated effect on investment.

Using the observed ratio of investment to capital stock in the United States (8.6%), the 8% estimate in the Chodorow-Reich et al. paper of the effect of GILTI on foreign capital growth (not investment) for firms subject to GILTI implies almost 100% investment growth. This growth would be exceptionally large even if GILTI had an effect. One factor that could account in part for this finding is that firms may have decided in 2017 to increase tangible investments, since the deemed repatriation tax applied at 8% to amounts invested in tangible assets and at 15.5% to amounts invested in cash. This could be a one-time change associated with transitioning from one tax regime to another; if so, it would not be a permanent source of enduring growth.

More importantly however, data on the growth of capital expenditures by U.S. majority-owned foreign affiliates indicated that capital expenditures *declined* by about 7% in nominal dollars from 2015-2016 to 2018-2019, according to NIPA data.³⁰ Thus, these estimates are inconsistent with the actual NIPA estimates.

Debt Finance

The measures of the tax variables focus on the present value of depreciation and the tax rate but do not account for debt finance, which is generally included directly in the user cost of capital as part of the required return to investment. Nominal interest on debt is deducted at the statutory rate, and lowering that rate reduces the value of tax deduction. The issue is addressed in the Chodorow-Reich et al. study, taking the view that there is no effect of interest deductions if financial capital structure is dependent on physical capital. However, it is reasonable to assume that firms would finance part of the increased capital stock with borrowing. The study includes no

²⁹ See, for example, Kyle Pomerleau, "What's Up With Being GILTI?," Tax Foundation, March 14, 2019, <https://taxfoundation.org/blog/multinational-tax/>; and Penn Wharton Budget Model, "Profit Shifting and the Global Minimum Tax," July 21, 2021, <https://budgetmodel.wharton.upenn.edu/issues/2021/7/21/profit-shifting-and-the-global-minimum-tax>.

³⁰ Direct Investment, Multinational Enterprises, *U.S. Direct Investment Abroad, All Majority-owned Foreign Affiliates, Capital Expenditures*, <https://www.bea.gov/products/national-income-and-product-accounts>.

regressions, however, that incorporate debt or how its standard inclusion in user cost would affect the authors' estimates.

If debt were incorporated, according to estimates from the CRS model, the percentage change in user cost would be reduced by about 42% based on the move from a 35% to a 21% statutory tax rate.³¹ In a sensitivity analysis, Chodorow-Reich et al. examine the effect of a 13 basis point increase in the interest rate, which would reduce the estimate of 10.2% to 7.9%. Based on the CRS model parameters and the change in the tax rate from the Chodorow-Reich et al. study, including the effect of the reduced value of interest deductions would be equivalent to an increase of 22 basis points.³² Assuming a roughly proportional effect and unchanged coefficients, the adjustment for interest deductions would reduce the authors' estimate to 6.3%, a reduction of 38%.

The Constant Required Rate of Return

The user cost of capital depends not only on the tax terms but on the required rate of return. The basic formula is $(R+d)(1-uz)/(1-u)$, where R is the required return to attract capital, d is the rate of economic depreciation, z is the present value of depreciation deductions, and u is the tax rate. Both the short-run regressions and the long-run capital stock estimates in Chodorow-Reich et al. assume R is fixed.

The previous section on debt finance noted that including the effects of deducting interest at a lower rate would increase R and decrease investment. But R could also increase for two other reasons. The first is that capital is not supplied without limit for increased capital investment. The increased demand for capital would bid up its price.³³ Second, the tax cuts come with an increased deficit, which would require increased borrowing by the government, crowding out private investment and increasing R . A long-run analysis that does not adjust for these effects would overstate the increase to the capital stock.

Consequences of Alternative Assumptions for the Investment Estimates

This analysis has identified three potential adjustments to the measure of user cost that could reduce the investment effects estimated by Chodorow-Reich et al.: the treatment of electric utilities, GILTI, and the reduced value of interest deductions.

Table 3 shows the combined effect of making these changes. It also shows the effect of adding a 13 basis point increase, estimated by the authors. The true effect could be larger or smaller, but it

³¹ Estimated from the CRS METR model at the statutory rate. See CRS Report R48277, *CRS Model Estimates of Marginal Effective Tax Rates on Investment Under Current Law*, by Mark P. Keightley and Jane G. Gravelle.

³² The mean pre-TCJA tax rate in the study is 27%, and the mean percentage change in the tax term is 14%, indicating a change in the tax rate of 10 percentage points. The percentage change of 14% is the change in the tax rate divided by $(1-27)$ and $(1 - 0.27) \times 0.14 = 0.1022$. According to the parameters in the CRS tax model, the nominal interest rate is 6.8% and the debt share is 32.3%, resulting in a 22 basis point change: $0.10 \times 0.323 \times 0.068$. See CRS Report R48277, *CRS Model Estimates of Marginal Effective Tax Rates on Investment Under Current Law*, by Mark P. Keightley and Jane G. Gravelle.

³³ Evidence suggests that the supply of savings is relatively unresponsive to the rate of return. For a review, see CRS Report R43381, *Dynamic Scoring for Tax Legislation: A Review of Models*, by Jane G. Gravelle. Capital may be supplied from abroad, but is not infinitely elastic. Jennifer Gravelle, "Corporate Tax Incidence: Review of General Equilibrium Estimates and Analysis," *National Tax Journal*, vol. 66 (March 2013), pp. 185-214, reviews the evidence and indicates an elasticity of substitution for international investment of around 3 to 4. In addition, the United States is a large country whose demand can influence the worldwide interest rate. The corporate sector may also draw capital from the noncorporate sector, but that also reduces the capital stock in the noncorporate sector, somewhat muting the effects on the economy writ large.

serves to illustrate the effects of interest rate increases in response to the law's increase in investment demand and annual deficits.

Table 3. Consequences of Alternative Assumptions for Investment Estimates in Chodorow-Reich et al.

Provision	Percentage Reduction	New Estimate as a Percentage of Original Estimate	Reduced Estimate From 10.2%
Public Utilities Change	8%	92%	9.4%
No Effect of GILTI	23%	77%	7.9%
Interest Deduction	38%	62%	6.3%
All Three	56%	44%	4.5%
13 Basis Point Increase	23%	77%	7.9%
All Four	67%	33%	3.4%

Source: CRS calculations, see text.

Notes: The 44% is the ratio of the three previous ratios: $0.92 \times 0.77 \times 0.62 = 0.44$. The 33% further multiplies by 0.77.

If all three of these adjustments were incorporated and the coefficients were unchanged, it would reduce the percentage change in investment to 4.5%, which is equivalent to 44% of the original estimate. This number would be easier to reconcile with the observed increase in C corporation investment in equipment and structures of 7.4%. However, if public utilities, which were responsible for much of this growth, were excluded, the change would be larger than total observed growth. Without public utilities, the estimate would be 4.9%, compared to observed growth of 4.7%, and would imply a small decline in investment in the absence of the TCJA.

If the estimated 10.2% increase in investment were also adjusted by the change due to the 13 basis point increase simulation to reflect a rising discount rate, the change in investment would be 3.4% rather than the 4.5%. This estimate is below the observed growth of 7.4%. The change excluding public utilities would be 3.7%, slightly smaller than the observed change of 4.7%.

In sum, all of the adjustments, including an increase in the interest rate, are necessary to make the estimates not imply that investment outside of public utilities would fall in the absence of TCJA.

Consequences of Alternative Assumptions for the Long-Run Capital Stock

Unlike the potential reductions in the estimates of short-term effects based on the regression, the adjustments in the long-run effects do not depend on the coefficients remaining unchanged, and the observed effects on investments from the regression do not determine the long-run effects.

Chodorow-Reich et al. report long-run steady state increases in the corporate capital stock of 6.4%. A large short-run increase in investment could indicate either a large long-run change in the capital stock or a rapid adjustment to a smaller long-run change. The long-run estimates do not depend on the econometric estimates comparing the control and treatment groups, except insofar as they relate to firms with foreign and domestic capital and the substitutability between these

locations of capital. Rather, the long-run estimates are derived from a Cobb-Douglas production function, with some substitutability of foreign and domestic capital.³⁴

These estimates would be affected by the corrections for public utilities and changes in the assumptions regarding GILTI and interest deductions; combined, these adjustments would reduce the authors' projected long-run increase to 2.8%, according to CRS calculations. If the basis point change were also included, the increase would be a 2.1% higher capital stock.

There is also some reason to question the production function. Although a Cobb-Douglas production function is frequently used in models, it is one of a broader class of production functions known as *constant elasticity of substitution (or CES) functions*, which can take on any elasticity. There is evidence that the factor substitution elasticity is smaller than the unitary elasticity used by the authors.³⁵ If an elasticity of 0.5, consistent with the economics literature, were used instead, the percentage change in capital would fall to 3.2% without any adjustments and to 1.1% with all of the aforementioned adjustments.

These estimates all assume that expensing will not be phased out. If expensing is phased out, the estimated effects would further fall by almost half.

Output Effects

Corporate long-run output changes are measured as the percentage increase in the capital stock multiplied by the capital share of income. Setting that share at 35%³⁶ would lead to an increase in corporate output of 2.2% based on Chodorow et al.'s standard estimate of a 6.4% increase in capital. If all the changes presented here were incorporated (i.e., resulting in a 1.1% increase in the capital stock), the percentage change in output would fall to 0.4%. In addition, corporate equipment and structures represent 54% of private nonresidential business capital. The study estimates that total investment, corporate and noncorporate, would increase by 6% with a 10.2% increase in corporate investment. If the total long-run capital stock were decreased proportionally, it would be 3.8% rather than 6.4%, for a 1.3% increase in output. If all the adjustments were made, the total business capital stock would be 0.6% and the output increase would be 0.2%.

Effects of the Corporate Tax Cut: A Comparison of S Corporations and C Corporations in Kennedy et al.

Kennedy et al. examine the corporate rate cut to determine the effect on output and the distributional effects of the corporate tax by comparing S corporations (which elect to be taxed as pass-through businesses under the individual tax) and C corporations (which are taxed under the

³⁴ A Cobb-Douglas production function has a unitary elasticity of substitution, defined as the percentage change in the ratio of labor to capital divided by the percentage change in the ratio of factor prices.

³⁵ Gravelle proposed an elasticity of around 0.5 based on a review of the literature in 2013. See Jennifer Gravelle, "Corporate Tax Incidence: Review of General Equilibrium Estimates and Analysis," *National Tax Journal*, vol. 66 (March 2013), pp. 185-214. Other prominent studies have placed the elasticity at 0.4, 0.5, and 0.6, respectively. See Robert S. Chirinko and Debdulal Mallick, "The Substitution Elasticity, Factor Shares, and the Low-Frequency Panel Model," *American Economic Journal: Macroeconomics* 2017, vol. 9, no. 4 (2017), pp. 225-253; Andrew Young, "U.S. Elasticities of Substitution and Factor-Augmentation at the Industry Level," *Macroeconomic Dynamics*, vol. 17 (2013), pp. 861-897; and Mingming Jianga et al., "Factor Substitution and Labor Market Friction in the United States: 1948-2010," *Applied Economics*, vol. 51, no. 17 (2019), pp. 1828-1840.

³⁶ See U.S. Bureau of Labor Statistics, "Estimating the U.S. Labor Share of Income," *Monthly Labor Review*, February 2017, <https://www.bls.gov/opub/mlr/2017/article/estimating-the-us-labor-share.htm#:~:text=What%20is%20the%20labor%20share,produced%20over%20the%20same%20period.>

corporate tax).³⁷ The study exploits the larger tax cuts for corporations compared to pass-throughs to identify the effects using a difference-in-differences method. Data on firms are matched with data on employees so that the study can also examine the effect on workers' employment and compensation. The data are from federal tax returns. The study controls for industry, firm size, and time-fixed effects.

Summary of Results

Applying the regression coefficients to the average reduction in the corporate tax rate, the study found that a \$1 corporate rate cut increases output by \$0.44. It estimated that C corporations would increase sales by 3.9%, employment by 2.3%, and the stock of depreciable assets by 2.9% due to the TCJA rate cut. Investment would increase by 8.2%, a 10.8% increase in investment in equipment and a 4% increase in structures. Because of graduated rates and other factors, the corporate tax rate was 13%, somewhat less than the statutory rate of 21% under TCJA. The net of tax rate (1 minus the tax rate), the variable used in the regression, fell by 10%. The reduction relative to S corporations was 6%.

The study's investment estimates indicate that the effect was not driven by liquidity, but by the corporate tax cut itself. The study also estimates that the change in investment was largely due to the corporate rate reduction.

The study also reported the distribution of the corporate tax cut. The estimates indicate that 51% of the tax cut went to owners of firms, 10% to corporate executives, and 38% to the top 10% of the workforce by pay. The bottom 90% received no share. The finding of no benefit for average workers is consistent with expectations from economic theory wherein the benefits of the tax cut in the short run accrue to shareholders. However, the significant share received by executives and highly compensated workers is not consistent with expectations. It could reflect some managerial discretion in pay or links between pay and after-tax profits.

Comments

This study includes an examination of parallel trends, thus addressing one potential shortcoming of some difference-in-differences estimates.

There are several issues that might be raised by these results, including the size of the capital stock change and the distribution of the tax cut relative to observed outcomes, as well as the modeling approach. Before discussing these issues, however, it is first important to note that these estimates are not necessarily representative of the corporate sector as a whole. Because the method matches otherwise-similar S and C corporations by size and industry, the results will reflect the smaller size of S corporations. Although the sample is restricted to corporations with at least 100 employees and \$1 million of sales, S corporations are smaller on average than C corporations, and the sample does not reflect the largest corporations, which are responsible for most corporate activity.

A large share of the C corporations in the sample—76%—are privately held corporations. Both S corporations and smaller, closely held C corporations have more overlap between top managers and employees and owners, so that the lines between labor compensation and profits are blurred.

³⁷ Patrick J. Kennedy et al., *The Efficiency-Equity Tradeoff of the Corporate Income Tax: Evidence from the Tax Cuts and Jobs Act*, March 21, 2024, https://patrick-kennedy.github.io/files/TCJA_KDLM_2024.pdf.

The Investment Response: Comparison to Observed Growth

The increases in investment due to the tax differential are large relative to the aggregate corporate data. Equipment investment, after excluding Subchapter S corporations and public utility equipment, grew at 3.7% in 2018 and somewhat less in 2019.³⁸ If C corporations in the sample were similar to all C corporations, then the additional growth rate in equipment of 10.8% was large relative to observed growth. However, the composition of equipment assets between the C corporations in the sample and total C corporations could be different, and smaller firms may have different adjustment paths.

Modeling Issues

The study relied only on the marginal tax rate and did not model the other elements of the tax system that could affect relative incentives, particularly the value of depreciation and interest deductions. Depreciation deductions could rise for equipment due to the move to full expensing but would fall because the lower tax rate makes them less valuable. The Kennedy et al. study addresses concerns about this issue by an alternative approach using estimated marginal tax rates from a study by Foertsch using a model similar to the CRS model for estimating marginal tax rates.³⁹ It finds a similar investment elasticity to the main estimates of the study.

The Foertsch study, however, differs from the estimates of the statutory tax rate in the Kennedy et al. study in that it uses the top marginal statutory rate rather than the effective marginal statutory tax rate from its data; includes a number of assets aside from equipment and structures (including intangible assets, land, and inventories); and includes all pass-through firms, not just S corporations. Land and inventories, in particular, experienced larger changes in their effective tax rates than equipment and structures. Moreover, unlike the statutory rate, where the percentage change in the net of tax rate is the same as the percentage change in the user cost of capital, the percentage change in the net of effective tax rate change must be multiplied by the after-tax return divided by the user cost of capital (the pretax return plus the economic depreciation rate). When using an effective tax rate, the interest deductions and depreciation deductions do not appear in the formula but are folded into the effective tax rate

CRS has a model similar to the Foertsch model, and data from the CRS model can be used to examine the percentage changes in the user cost of capital, using the marginal tax rates in the Kennedy et al. study, focusing on equipment and nonresidential structures (outside of oil and gas/mining and power structures), and using firm-level differences.⁴⁰

The basic form of the user cost, c , is:

$$c = (R + d)(1 - tz)/(1 - t)$$

where

$$R = (fE + (1 - f)((i^*(1 - t) - p) + d)$$

$$f = \text{share of debt finance} = 0.3$$

³⁸ The percentage changes are calculated from Bureau of Economic Analysis, Fixed Assets Tables, *Table 4.8. Chain-Type Quantity Indexes for Investment in Private Nonresidential Fixed Assets by Industry Group and Legal Form of Organization*, accessed February 8, 2025, <https://www.bea.gov/products/national-income-and-product-accounts>.

³⁹ Tracy Foertsch, U.S. Effective Marginal Tax Rates on New Investment Under Prior Law and the Tax Cuts and Jobs Act, October 24, 2018, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3272392.

⁴⁰ Assuming that pass-through firms have the same required return on equity as the after-tax corporate return and equal debt shares, the question of whether taxes are levied on creditors or shareholders would make no difference.

E = real required return to equity = 0.0678

i = nominal interest rate = 0.0682

t = statutory tax rate

p = inflation rate = 0.02

d = economic depreciation

z = present value of depreciation

From the model estimates, the present value of tax depreciation *before accounting for bonus depreciation* is 0.823 for equipment and 0.375 for nonresidential structures. Structures are 60% of total structures and equipment in the model. However, the weighted user costs need to be adjusted for relative user costs, which are larger for equipment than for structures (largely because of differences in economic depreciation), so that the final adjusted weights have a share of 56% for structures. The initial tax rates are 21% for C corporations and 31% for S corporations, with a 10% decline in the net of tax rate for C corporations and a 4% decline for S corporations. Bonus depreciation for equipment is 50% in 2017 and 100% in 2018 in the model, consistent with the law as enacted under the TCJA.

The change in interest deductions raises the user cost of capital (i times the change in the tax rate) divided by $(R+d)$, as does the reduced value of tax depreciation, the change in tz divided by $(1-tz)$. The user cost falls by the change in t divided by $(1-t)$.

Table 4 reports the percentage differences between C and S corporations, adjusting for the different elements that affect user costs, with separate estimates for equipment and structures. The first row shows that the effect of the statutory rate differences is -5.8%, slightly different from the study because of rounding, since the study did not report the precise tax rates. The differences are estimated both with and without bonus depreciation.

Table 4. Percentage Differences in the User Cost of Capital of C Corporations Relative to S Corporations in the Kennedy et al. Study: Effects of Tax Rates, Depreciation Values, and Interest Deduction Values

	Equipment	Structures	Equipment and Structures
Rate Reduction	-5.8%	-5.8%	-5.8%
Plus No Bonus Depreciation	-1.1%	-3.7%	-2.6%
Plus Bonus Depreciation	1.5%	-3.7%	-1.4%
Plus No Bonus, Interest Deduction	-0.6%	-3.1%	-2.0%
Plus Bonus, Interest Deduction	2.1%	-3.1%	-0.8%

Source: CRS calculations, see text.

These measures reflect the asset weights in the overall corporate sector, and could be somewhat different for the sample used by Kennedy et al. But they serve to illustrate the importance of accounting for deductions for depreciation and interest.

For equipment, adding depreciation and interest deductions causes the user cost to be higher, not lower, for C corporations than for S Corporations, while it reduces the relative reduction for structures. Overall, there is virtually no difference between the changes in user costs for C corporations vs. S corporations. However, most of the observed increase in capital investment

was in equipment. Therefore, it is unlikely the changes in investment in the Kennedy et al. paper are attributable to the TCJA tax cuts.

The findings in **Table 4** for the tax rate alone can also be seen as consistent with the Foertsch study, where the overall net of effective tax rate changed by -7.5% for all corporate assets and by -2.4% for all noncorporate assets, for a final difference of -5.1%. This change reflects all of the changes in **Table 4** but for all assets, so it is by coincidence that the numbers are similar. For equipment, however, the net of effective tax rate *rose* by 0.9% for corporate assets and declined 1.1% for noncorporate assets, for a difference of 2.0%, an increase similar to that in **Table 4**. This different effect on equipment both in the Foersth study and in **Table 4** occurs because of the effect of tax rate changes on the value of depreciation for assets with large present values of tax depreciation.

Distribution of Income

The estimates that half of the differential in taxes accrued to highly paid workers and executives is not in accord with theoretical expectations, where the tax cut would accrue to shareholders in the short run. However, in the case of private closely held corporations, the shareholders and highly paid workers overlap, so the overall incidence assumption might not be violated. The robustness checks show that excluding large corporations and those in the manufacturing industry would increase the coefficient. These findings indicate that large firms and manufacturing firms had less shifting to highly compensated workers and executives under these circumstances, since including them reduces the estimated coefficient. The presence of a large share of private corporations in the study and the lower effects share of benefits to workers for larger corporations makes it less likely that tax cuts would be shared with executives in any significant way for very large public corporations, which account for most corporate tax payments.

For the firms in the sample, a movement upward from the parallel trend had already developed for compensation of corporate high earners and executives in 2017. The study's estimates might simply be a continuation of this trend. The authors suggest the previous departure from trend in the growth rate might have been due to corporations shifting bonuses into 2017 to deduct them at higher corporate rates. There is evidence that firms shifted contributions to defined benefit plans from 2018 to 2017.⁴¹ However, the optimal strategy with respect to cash bonuses would have been to shift them to the early part of 2018 from 2017.⁴² Under accrual accounting rules, corporations could still deduct these bonuses at the 2017 rate as long as they paid them within the first 2.5 months of the new year. Fiscal year corporations would have a longer period in which to deduct bonuses at the 2017 rate. In this case, executives and highly compensated workers would have also benefited from the individual rate cut in 2018. Thus, an optimal shifting strategy does not support the departure from trend in 2017 and the difference-in-differences method may not be valid for this purpose. That is, the relative increase in bonuses could have been a continuation of a trend that had already developed as well as due to optimal tax shifting.

⁴¹ Fabio B. Gaertner et al., *The Effects of the Tax Cuts & Jobs Act of 2017 on Defined Benefit Pension Contributions*, February 6, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3185711.

⁴² See Steve Rosenthal, "Post TCJA Bonuses Were Mostly a Timing Shift, Not A Boost In Long-Term Worker Pay," *Forbes*, July 18, 2019, <https://www.forbes.com/sites/stevenrosenthal/2019/07/18/post-tcja-bonuses-were-mostly-a-timing-shift-not-a-boost-in-long-term-worker-pay/>; and Daniel Hemel, "Yes—the Tax Law Could Be Causing Corporations to Pay Bonuses. But It May Be a Tax Game That Won't Last (with David Kamin)," January 27, 2017, <https://medium.com/whatever-source-derived/yes-the-tax-law-could-be-causing-corporations-to-pay-bonuses-f22fddff2444>.

Effects on Corporate Investment by Crawford and Makarian

Crawford and Makarian employ a difference-in-differences method using Compustat financial data to estimate the effect of the tax cuts in several different ways. They examine the effects on overall investment, repatriation of foreign earnings, financial constraints, foreign versus domestic investment, and differential effects for firms with different asset mixes.⁴³ The study includes firm- and time-fixed effects.

Summary of Results

The first analysis by Crawford and Makarian uses a difference-in-differences comparison of U.S. and Canadian firms and finds that capital expenditures of U.S. firms as a share of assets increased by 0.18% to 0.38% of the capital stock for the combined years 2018 and 2019. The mean investment for 2018 and 2019 was 0.9% of the capital stock, which implies a large increase in investment of about 20% to 40%. The regression with controls for other factors indicates an increase in investment of around 20%. When 2018 and 2019 are evaluated separately, there is a much smaller and statistically insignificant effect for 2018 and a 20% increase for 2019.

The first analysis focuses on increases in investment as a general result of the tax cut. The remaining three analyses explore what particular aspects might have affected investment. The second analysis concentrates on U.S. firms and compares growth in capital expenditures as a function of the amount of cash held abroad and the amount repatriated. During the debate over the TCJA, proponents argued that the international tax system limited U.S. domestic investment by causing firms to retain earnings abroad to avoid triggering the tax on dividends. The results of the study indicate that cash abroad decreased investment before the TCJA. However, cash abroad increased domestic investment after the TCJA, when cash abroad could be repatriated without tax consequences, suggesting that the ability to repatriate without tax consequences increased investment. The increase was greater the more cash a firm held abroad relative to assets. The study's results also indicated that firms with cash abroad that repatriated income increased investment.

The third analysis examines the effect of expensing for shorter-lived assets by comparing firms with asset lives above the median to those below it. Bonus depreciation is largely limited to equipment, which is shorter lived than structures. There were no statistically significant effects for firms having shorter-lived assets for the two-year period 2018-2019, although investment increased for firms with shorter-lived assets when only 2019 was considered. There was a larger effect for financially constrained firms, although the difference was small.⁴⁴

The fourth analysis compared financially constrained firms with unconstrained firms and found that financially constrained firms increased investment more, consistent with investments increasing due to additional cash from the tax cut. The authors also note that restrictions on interest deductions may have influenced investment.

⁴³ Steven Crawford and Garen Markarian, *The Effect of the Tax Cuts and Jobs Act of 2017 on Corporate Investment*, September 2022, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4239855.

⁴⁴ A financially constrained firm is one that has limited access to external finance, which can limit investment.

Comments

As with any difference-in-differences study, the presence of parallel trends is a concern for the study's validity. This parallel trend assumption introduces difficulties when comparing the United States and Canada. Examining investment as a percentage of GDP across the G7 since 2016 indicates that while investment was rising in other countries in the G7, it was declining in Canada.⁴⁵ Studies have examined the slowing of growth in corporate investment in Canada compared to the United States after 2000, particularly after 2014. A study by Globerman found that there is a growing share of investment in the Canadian housing sector, which some attribute to the significant growth in immigration compared to the United States.⁴⁶

The estimates of the effects of cash abroad may also have an issue of dissimilar growth paths. Firms with cash abroad are multinational firms and also tend to be larger firms. The median firm in Crawford and Makarian's sample has no cash abroad. (Further descriptive details about the nature of the sample are not provided by the authors.) Thus, large multinational firms could have been growing at different rates than other firms before the enactment of the TCJA.

With respect to the asset mix estimates, as noted above, although firms became eligible for 100% expensing rather than 50% expensing upon enactment of the TCJA, the value of that change was more than offset by the lower tax rate for shorter-lived assets than for longer-lived assets. That is, the present value of depreciation deductions fell because of the reduction in the corporate tax rate, and that decline was greater for shorter-lived assets that were eligible for 50% bonus depreciation and had a high present value of deductions for the remaining 50%. Using the same values for depreciation as in the calculations for **Table 4**, and using the corporate statutory rates from the Chodorow-Reich et al. study, the user cost of capital for equipment fell by 4% while the cost for nonresidential structures fell by 10%, not incorporating the effects of debt. The smaller effect for equipment was due to the value of the depreciation deduction falling more for equipment than for structures because their present value was much larger and taxes constituting a smaller share of the user cost because of the larger value of economic depreciation. Therefore, assuming investment has the same elasticity with respect to the user cost of capital across asset types, there should have been a smaller response for shorter-lived assets. Thus, the results of the Crawford and Makarian study contradict the expectations from theory.

The Effects of the Section 199A Pass-Through Deduction for Businesses by Goodman et al.

Goodman et al. use administrative tax data to measure the effect of the pass-through deduction on taxpayers differentially benefiting from the tax cut.⁴⁷ Some pass-through business income is not eligible for the pass-through deduction. Wages paid to owners of Subchapter S corporations and guaranteed payments to partners (which are similar to wages) are not eligible for the deduction. The pass-through deduction is phased out at higher income levels for taxpayers providing

⁴⁵ William G. Gale, *How Much Did the TCJA Raise Investment?*, Brookings Institution, January 13, 2025, <https://www.brookings.edu/articles/how-much-did-tcja-raise-investment>.

⁴⁶ Steven Globerman, *Comparing the Investment Performances of Canada and the United States over the Past Five Decades*, Fraser Institute, 2024, <https://www.fraserinstitute.org/sites/default/files/comparing-investment-performances-canada-and-us-over-past-five-decades.pdf>.

⁴⁷ Lucas Goodman et al., *How Do Business Owners Respond to a Tax Cut? Examining the 199A Deduction for Pass-Through Firms*, National Bureau of Economic Research, Working Paper 28680, revised September 2024, https://www.nber.org/system/files/working_papers/w28680/w28680.pdf.

personal services (such as doctors and lawyers). For other businesses, the deduction at higher incomes is limited to the owner's share of 50% of the business' wage payments or 25% of wage payments plus 2.5% of the business' tangible assets.⁴⁸

The empirical method used in this paper is a difference-in-differences comparison between those subject to the tax cut and those not subject to the tax cut. It also tests for the parallel trends requirement and finds that it does not hold perfectly. It uses an assumption of an approximate parallel trend and uses statistical measures to adjust the results. It examines both real economic effects (investment, wages, and employment) as well as actions to recharacterize income to reduce taxes.

Summary of Results

The study finds no evidence of an effect of the pass-through deduction on investment, wages paid to nonowner employees, or firm-level employment. However, it does find effects on activities undertaken for the sake of reclassifying income.

Pass-throughs have some flexibility in characterizing income to owners as wages or business income, and the incentive to do so differs by the form of pass-through business. Subchapter S corporations have a preexisting incentive to minimize wages of active shareholders because these wages are subject to payroll taxes, and because high-income owners pay the Medicare tax even if they are above the earnings limit for the Social Security tax. Payroll taxes may be 15.3%, 2.9%, or 3.8%, depending on income.⁴⁹ In contrast, active partners in partnerships pay the equivalent of payroll taxes (the self-employment tax) on all partnership-related income. Because of this distinction, Subchapter S corporations are required to pay a "reasonable wage," which is not applied to partnerships.

Partners have an incentive to pay less in wages so as to qualify for the passive income deduction, which does not apply to wages. For firms above the phaseout for the pass-through deduction, there can also be a benefit to paying additional wages because doing so can raise the 50% or 25% wage limit on the maximum pass-through deduction. The study found evidence that wage payments to partners (in the form of guaranteed payments) fell by about 10% for partnerships eligible for the pass-through deduction, but that there was no decline in wages paid to Subchapter S owners. This difference may reflect the legal constraint that applies to Subchapter S firms but not to partnerships.

The study also found that a relatively small subset of S Corporations increased wages because of the wage requirement for eligibility for the pass-through deduction. There was also some evidence of industry reclassification out of ineligible business types. However, the study did not find evidence that workers were reclassified as independent contractors to become eligible for the pass-through deduction.

Comments

This study addressed the common problem that arises with difference-in-differences estimates, the violation of parallel trends. The results of the study were also consistent with economic

⁴⁸ CRS In Focus IF12838, *Selected Issues in Tax Policy: Section 199A Deduction for Pass-Through Business Income*, by Mark P. Keightley.

⁴⁹ The below-the-wage-ceiling (\$128,400 in 2018) payroll taxes for both employer and employee are 15.3% (12.4% for Social Security and 2.9% for Medicare). After that level, only the 2.9% Medicare tax is paid. However, there is an additional 0.9% payroll tax under the additional Medicare tax, so that taxpayers with higher wages (\$250,000 for married couples and \$200,000 for others) pay 3.8%.

theory, which would not predict an increase in wages in the short run. Theory would predict an increase in investment and employment through changes in the cost of capital (the focus of the Chodorow-Reich et al. study), but a rate reduction in isolation tends to have a modest effect, and for some assets a negative effect, because of decreases in the value of deductions for expensing, depreciation, and interest. For example, for equipment, once full expensing is in place a rate reduction makes no difference in the marginal incentive for investment, and if the investment is also debt financed, it provides a disincentive by reducing the value of interest deductions.

Domestic and Foreign Investments: A Comparison of Multinational Firms and Domestic-Only Firms, by Beyer et al.

Beyer et. al. employ a difference-in-differences approach to compare investment of firms affected differently by the new international tax regime using a financial dataset from Compustat.⁵⁰ The international regime made it easier for multinationals to repatriate earnings of their foreign subsidiaries (pay dividends to the U.S. parent). Under prior law, dividends from foreign subsidiaries increased taxes by the difference between U.S. taxes and foreign taxes. Thus, paying a dividend could trigger an additional tax. Some argued that this tax on repatriations interfered with the financing of domestic investment by encouraging firms to hold cash abroad. Firms faced different tax consequences for repatriations, however. Firms with high foreign taxes had no costs or smaller costs than firms with low foreign taxes.

The estimates of these effects in Beyer et al. are based on quarterly data for three quarters before the quarter of the TCJA's enactment (the fourth quarter of 2017) and the three quarters after enactment.

Beyer et al. also consider the incentives in GILTI and FDII for investing in foreign tangible assets. Investments in tangible assets increased the exclusion for GILTI, and investments in domestic tangible assets reduced the amount of the FDII deduction. This estimate compared growth between 2015 and 2016 with growth between 2017 and 2018.

Summary of Results

The study found no statistically significant investment increase by domestic-only firms but a 2.4% increase in investment by multinational firms. The study also found that, within the multinational sample, firms with high repatriation costs increased investment. Within that group, investment increased most among firms with large foreign cash holdings. In estimating investment in domestic versus foreign assets, the study found no statistically significant change in domestic investment or in investments by multinational companies with low repatriation costs, but did identify an increase in foreign investment for firms with high repatriation costs (that is, firms with low foreign tax rates that would benefit most from the tangible asset exclusion in GILTI). Thus, the evidence did not support an effect on domestic investment, but did support an effect on foreign investment.

⁵⁰ Brooke Beyer et al., *The Effect of the Tax Cuts and Jobs Act of 2017 on Multinational Firms' Capital Investment: Internal Capital Market Frictions and Tax Incentives*, May 2019, <https://aaahq.org/portals/0/newsroom/2019ann-3.19corptaxcut&capinvestmt.pdf>.

Comments

Except for the estimate of foreign versus domestic capital investments, these estimates are not difference-in-differences estimates; rather, they are comparisons of investment levels before and after the TCJA over a relatively short time horizon. Thus, if multinational firms were growing faster than domestic-only firms prior to the TCJA, and if multinational firms operating in lower-tax jurisdictions were already growing faster than multinational firms in high-tax jurisdictions, the study's results could be due to preexisting differences in growth rather than to effects stemming from the TCJA.

The difference-in-differences analysis comparing increases in domestic and foreign capital expenditures does not test for parallel trends, so these results could be due to different preexisting growth paths as well. As noted earlier, firms with high repatriation costs and significant accumulated earnings abroad could have increased tangible investments abroad to obtain more favorable tax treatment on accumulated foreign earnings. The tax rate on deemed repatriations was 15% for cash accumulations and 8.8% for tangible investments.

The Effect of Liquidity: A Comparison of Firms Affected by the Elimination of the Repatriation Tax by Albertus et al.

During the debate on the TCJA, proponents argued that the international tax system provided barriers to U.S. domestic investment by causing firms to retain earnings abroad. Albertus et al. used data provided by the Bureau of Economic Analysis to estimate the responses of firms that benefited differently from the international provisions that eliminated the repatriation tax.⁵¹ The TCJA's elimination of the tax on dividends (repatriations) from foreign subsidiaries and its imposition of a one-time transition tax on deemed repatriations effectively mean that repatriations no longer trigger a U.S. tax. The study compares the behavioral responses to the TCJA of firms with different amounts of unrepatriated earnings, and includes firm- and time-fixed effects. The study focuses on cash flow effects rather than marginal incentives.

Summary of Results

The study found no effects on U.S. capital expenditures, employment, R&D, or merger and acquisition activity. It also found no effects on foreign investment. About 30% of previously unrepatriated cash was paid to shareholders, generally in the form of share repurchases, and about half was retained as cash. It also found that financially constrained firms had responses no different from those that were not financially constrained.⁵² Thus, the findings suggest that additional cash held abroad did not affect real economic activity.

⁵¹ James F. Albertus et al., "The Real and Financial Effects of Internal Liquidity: Evidence From the Tax Cuts and Jobs Act," April 2024, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4471259. The article is scheduled for publication in the *Journal of Financial Economics*, vol. 166 (April 2025), <https://www.sciencedirect.com/science/article/abs/pii/S0304405X25000145>.

⁵² A financially constrained firm is one that has limited access to external finance, which can limit investment.

Comments

The main finding on which the authors focus is why the unrepatriated cash was not paid to shareholders. Studies of the 2007 repatriation holiday (when firms could voluntarily repatriate earnings with a reduced tax) found that most of the repatriation was used to pay shareholders. However, that repatriation was voluntary, so firms had to incur a cost to enable shareholder distributions. The deemed repatriation from the TCJA is different because the tax is due regardless of whether firms repatriated income. Thus, firms may have viewed foreign cash holdings as a substitute for domestic cash holdings, which could in turn be used as collateral for debt. Compared, for example, to a tax cut, firms already had this cash on hand, meaning they had the ability to use it for other purposes without triggering a tax. This difference might explain why it was not used to pay down debt. The findings in the Albertus study suggest that the tax triggered by repatriation under pre-TCJA law was not a significant contributor to reducing U.S. investment and that cash abroad was viewed in part as a substitute for cash at home and in part was a barrier to distributions to shareholders.

Conclusion

Due to the lags in research, the complexity of the TCJA, and the disruption of the pandemic, the evaluation of the TCJA is difficult. The value of difference-in-differences or fixed effects econometric studies of the TCJA depends on a number of factors, including the validity of the control group, the proper specification of complex tax terms, internal consistency, and the ability to generalize the studies' results to all firms. Moreover, the results should broadly align with observed, real-world economic changes. Most of the studies of the TCJA have had shortcomings that throw their conclusions into question. The studies reporting the largest effects, in particular, suffer from methodological flaws that may require revision. After accounting for such flaws, the literature as a whole does not provide support for significant effects of the Tax Cuts and Jobs Act on the economy.

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