B | Economic Studies at BROOKINGS

POLICY BRIEF

The Tax Cuts and Jobs Act: A test of supply side economics

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The Tax Cut and Jobs Act (TCJA) of 2017 created the most substantial changes in tax policy since the Tax Reform Act of 1986.[2] TCJA was substantially motivated by supply side concerns – the idea that the tax system discouraged companies from locating, investing, and reporting profits in the United States. Specifically, the Trump administration's claim was that lower effective tax rates on new investment would raise investment, which would make workers more productive and raise output and wages. Consistent with these goals, TCJA reduced marginal effective tax rates (METRs) on new investment and reduced the dispersion of METRs across asset types, financing methods, and organizational forms. A substantially lower corporate rate combined with measures to stem profit shifting was intended to bring funds and real activity back to the United States.

This policy brief reviews changes in economic aggregates through the end of 2019 and relates those changes to the supply-side incentives in TCJA. There are at least two justifications for undertaking this study at this point. First, TCJA's historic and sweeping changes merit close examination as researchers and policy makers consider what steps to take next. Second, starting

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[2] Public Law No. 115-97 is commonly called the Tax Cuts and Jobs Act, but the official title is "An Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018."

in early 2020, the COVID-19 pandemic wreaked havoc on the U.S. (and world) economy. This may make it difficult to isolate the long-term empirical effects of TCJA using data after 2019.

Our overarching conclusion, derived from analysis of several major economic aggregates, is that the supply-side reaction to TCJA was at best muted, and is likely to have been vanishingly small.

REVENUE

First, despite the ardent claims of its advocates, TCJA reduced revenue significantly relative to what would have been generated had the law not passed. That is, nothing approaching a Laffer Curve effect applies to TCJA. In fact, the TCJA reduced revenues significantly. In 2018 and 2019, total federal revenue was $545 billion, 7.4 percent lower than projected before TCJA (CBO 2020). Relative to pre-TCJA projections, income tax revenue declined 6.9 percent, and corporate tax revenue declined by more than 37 percent (Figure 1). These declines are not the product of overly optimistic prior projections. If they were, payroll tax revenues, which were unaffected by TCJA, would have declined relative to pre-TCJA projections. But predicted and observed payroll tax revenue track very closely in 2018 and 2019.

GDP

The impact of TCJA on GDP growth is difficult to pin down. The economy did grow faster after 2017 than had been predicted under a baseline that did not include TCJA, but the supply-side effects of TCJA are confounded with several other factors that were not included in the pre-TCJA baseline: the demand-side effects that TCJA created through an increase in disposable income; contemporaneous changes in oil prices; and shifts in monetary, fiscal, and international trade policy.

INVESTMENT

Real business fixed investment did, in fact, grow at a faster rate post-TCJA than pre-TCJA. On a first pass, this appears to be consistent with the theory of how TCJA could affect long-term growth through supply-side effects. But several factors suggest that tax-based investment incentives were not the source of the increase in investment.

The first issue is timing. Investment growth peaked in 2017 Q4 and remained elevated only through 2018: Q1, the first quarter after TCJA was enacted. For this to have been a supply side effect, induced by TCJA's incentives, would have required a remarkably rapid firm-level adjustment to the tax regime when it was in its infancy and pre-infancy. This seems especially unlikely given that proponents of TCJA typically emphasize that the supply-side effects would take time to arise. Then, investment growth petered out by the end of 2019. The supply-side story would have implied a rising effect over time, as firms adjusted to the new regime. For example, CBO's (2018a, Figure B-2) projections show an investment effect that is rising over time through 2019.

Second, the spike and subsequent decline in investment growth is well explained by changes in oil prices and the resulting changes in oil- and mining-related investment, which accounts for almost all the growth investment in 2018, according to a Penn-Wharton Budget Model study; see results in Arnon (2019) and the discussion in Furman (2020). And as Figure 2 illustrates, the trends in investment outside of oil and mining were substantially more muted than the trends in the oil and mining sector.

Third, relative changes in marginal effective tax rates (METRs) or the user cost of capital (UCC) across different asset types do not correlate well with relative changes in investment. Several studies — including Barro and Furman (2018), CBO (2018b), DeBacker and Kasher (2018), and Gravelle and Marples (2019) — show that TCJA reduced METRs and UCCs for

investments in equipment and structures by more than it did for intellectual property (Table 1). But investment in intellectual property grew faster than investment in equipment and structures (Figure 3).

Consistent with these findings, an IMF study (Kopp et al. 2019) estimates that investment growth after TCJA was smaller than would have been expected based on the effects of previous corporate tax cuts, and that the rise in investment that did occur can be explained almost fully by higher aggregate demand brought on by increased government spending due to the budget acts and the rise in disposable income due to the tax cuts. Finally, in a 2019 survey undertaken by the National Association of Business Economics (2019), 84 percent of businesses reported that the tax cut had not altered their investment or hiring decisions.

BUSINESS FORMATION

Despite the corporate rate cuts and the pass-through deduction, patterns in new business formation, cast doubt on the potency of the supply-side incentives that TCJA provided. Figure 6 reports Census data showing that growth in new business formation fell considerably in 2018 and 2019 relative to the two previous years. Growth in new business formation fell 2.1 percentage points from 6.8 percent over 2016-17 to 4.7 percent over 2018-19 (31 percent)**.** The U.S. Census Bureau (2019c) highlights so-called "high-propensity" businesses, which are those most likely to hire employees in the future. Growth in high-propensity business formation fell by 0.83 percentage points from 2.2 percent over 2016-17 to 1.4 percent over 2018-19 (38 percent; see Figure 4).

WAGES AND EMPLOYMENT

The Trump administration claimed that the TCJA would provide significant benefits to workers. In particular, the Council of Economic Advisers claimed that cutting the corporate tax

rate from 35 to 20 would "increase average household income in the United States by, very conservatively, $4,000 annually," and with "more optimistic estimates… wage boosts [would be] over $9,000 for the average U.S. household." CEA also predicted that annual *median* household wages would rise between $3,000 and $7,000. CEA (2017) also claimed that there would be significant short-term effects, arguing that by repealing the tax on repatriation earnings, "U.S. workers would retain 30 percent of the 2016 profits of U.S. firms earned abroad and not currently repatriated." There is no evidence, however, that any wage response close to these claims occurred in 2018 and 2019, though there was a large increase in repatriations (discussed below). Indeed, the claims themselves stretch the bounds of credibility.[3]

Figure 6 shows the growth of various measures of employment and wages in the two years before and after the passage of TCJA. The economy grew faster after TCJA was enacted than had been predicted before TCJA, as noted above, but it was not enough to maintain employment growth. After TCJA was enacted, employment growth slowed. Growth in total non-farm employment declined by 0.22 percentage points. Growth in the employment-to-population ratio among prime-age (25-54) individuals declined by 0.08 percentage points.

Employment levels were approaching historically high levels when TCJA passed, so the slowdown in employment growth may have been a product of marginal employment gains being more difficult to achieve as the economy approaches full employment. But if that is the case, then it is hard to explain why growth in real median earnings of all wage and salary employees *fell* by 0.21 percentage points. If employment growth slowed because the labor market was

[3] For example, as Furman (2017) points out, the claim that wages would rise by $4,000 to $9,000 implies that workers bear between 137 percent and 275 percent of the corporate tax, which is an order of magnitude greater than estimates by Nunns (2012), JCT (2013), and CBO (2018c).

tightening, one would have expected wage growth to rise, not fall.[4]

After TCJA was enacted and before the end of 2017, several corporations gave their employees bonuses. The bonuses were well-publicized but small. They averaged about $225 per worker at firms reporting tax-cut related bonuses (Tankersley and Phillips 2018). In aggregate, they totaled $4.4 billion, about $28 per employee in the population (Gravelle and Marples 2019). This figure represents 0.05 percent of the annual aggregate wage bill in 2019 ($9.3 trillion), 3.3 percent of the 2018 tax cut for corporations ($135 billion), and 0.6 percent of the increase in repatriated funds from 2017 to 2018. The companies that gave bonuses were more likely than those that didn't to have received larger tax cuts under TCJA and were also more likely to have contributed to Republican PACs than Democratic ones (Hanlon, Hoopes, and Slemrod 2018). In short, the bonuses are most charitably considered tax avoidance and less charitably considered as, in the words of AEI economist Alan Viard (2019), "a public relations gimmick."

PROFIT SHIFTING

A major purpose of TCJA, as evidenced by Council of Economic Advisers (2017, 2018), was to encourage businesses to locate more of their real activity and profits in the United States. To accomplish this goal, TCJA reduced the corporate tax rate to 21 percent, created a territorial system (with deemed repatriation of previously accumulated but unrepatriated foreign profits) and enacted GILTI, BEAT, and FDII provisions. Despite the policy changes, evidence suggests that any decline in profit shifting was small. Figure 5, taken from Clausing (2020), shows the share of U.S. multinational corporation profits reported in seven major tax havens around the

[4] An alternative measure of wages did rise faster after TCJA than before. Growth in the employer cost index (ECI) for wages and salaries increased by 0.56 percentage points. The ECI measures mean rather than median wages. Faster mean wage growth combined with slower median wage growth suggests that the ECI change was driven by trends for high-income workers and that low- and middle-income workers did not experience increases in wage growth.

world. That share rose steadily from 2000 to 2014. Since then, it has leveled off as a share of U.S. GDP. As a share of corporate profits, it rose through 2017, when it reached over 65 percent, and then leveled off in 2018 and 2019 at its 2015 level of about 60 percent. That is, depending on the measure used, there may have been a small reduction in aggregate profit shifting after TCJA was enacted.

REPATRIATIONS AND BUYBACKS

TCJA's advocates expected that moving to a territorial system would unleash a torrent of repatriated funds that would then generate increased domestic investment and higher wages. TCJA did result in a major increase in repatriated funds at the beginning of 2018, and though they declined somewhat later in the year, repatriations remained elevated relative to pre-TCJA levels through 2019 (Figure 6). The lack of impact on investment and wages is discussed above.[5] Instead, the data in the Figure suggest that much of the repatriated funds financed stock repurchases, as discussed by Gravelle and Marples (2019).

INVERSIONS

Another claim (Holtz-Eakin 2020) is that the law would reduce corporate inversions, the practice of American companies moving their headquarters abroad for tax reasons. By reducing the corporate tax rate and making other changes, TCJA certainly reduced the incentive to invert and there have been no major corporate inversions since TCJA was enacted. But it is also the case that there were no major inversions in 2017, after a second round of Obama-era regulations designed to curb the practice took effect, but before TCJA. Of course, it might be possible that

[5]The lack of investment or wage response and the boost to buy backs is not surprising, given that many large U.S. companies were already holding substantial amounts of cash before TCJA, indicating that investment was not constrained by cash-flow constraints. In addition, it is worth noting that "repatriation" refers only to the recognition of the funds by the parent corporation for tax purposes. It does not imply that the funds were not already being used to help the American economy.

there would have been inversions after 2017 in the absence of TCJA, but the major decline appears to have happened before the law was enacted.

CONCLUSION

One caveat to this work is that the results are short-term. Short-term growth dynamics are typically dominated by changes in aggregate demand whereas long-term growth stems from changes in aggregate supply. The long-term effects could be larger or smaller (or different in sign) than the short-run impact. A second concern is that it is based on aggregate data. Ultimately, research using micro data will extend our understanding of the impact of TCJA. But the COVID pandemic may make research into longer-term effects of TCJA difficult.

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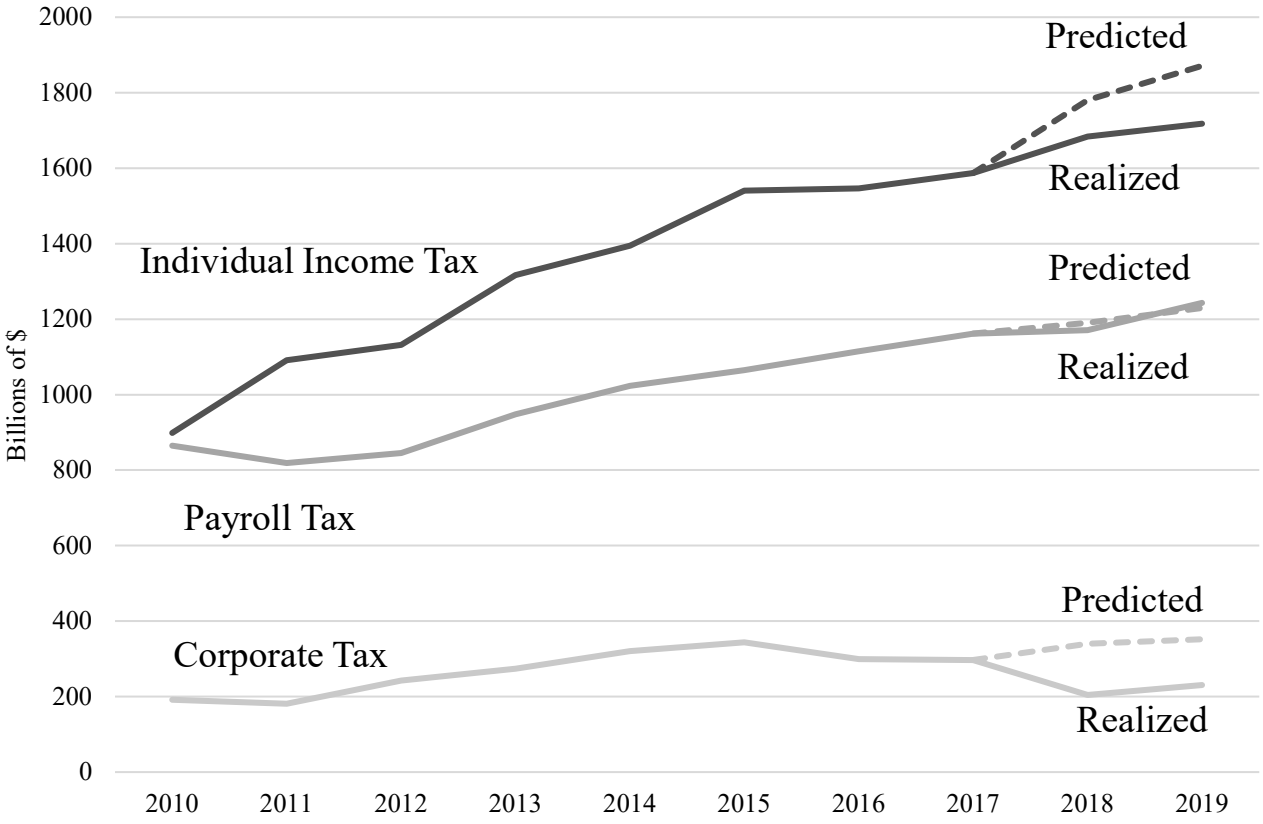
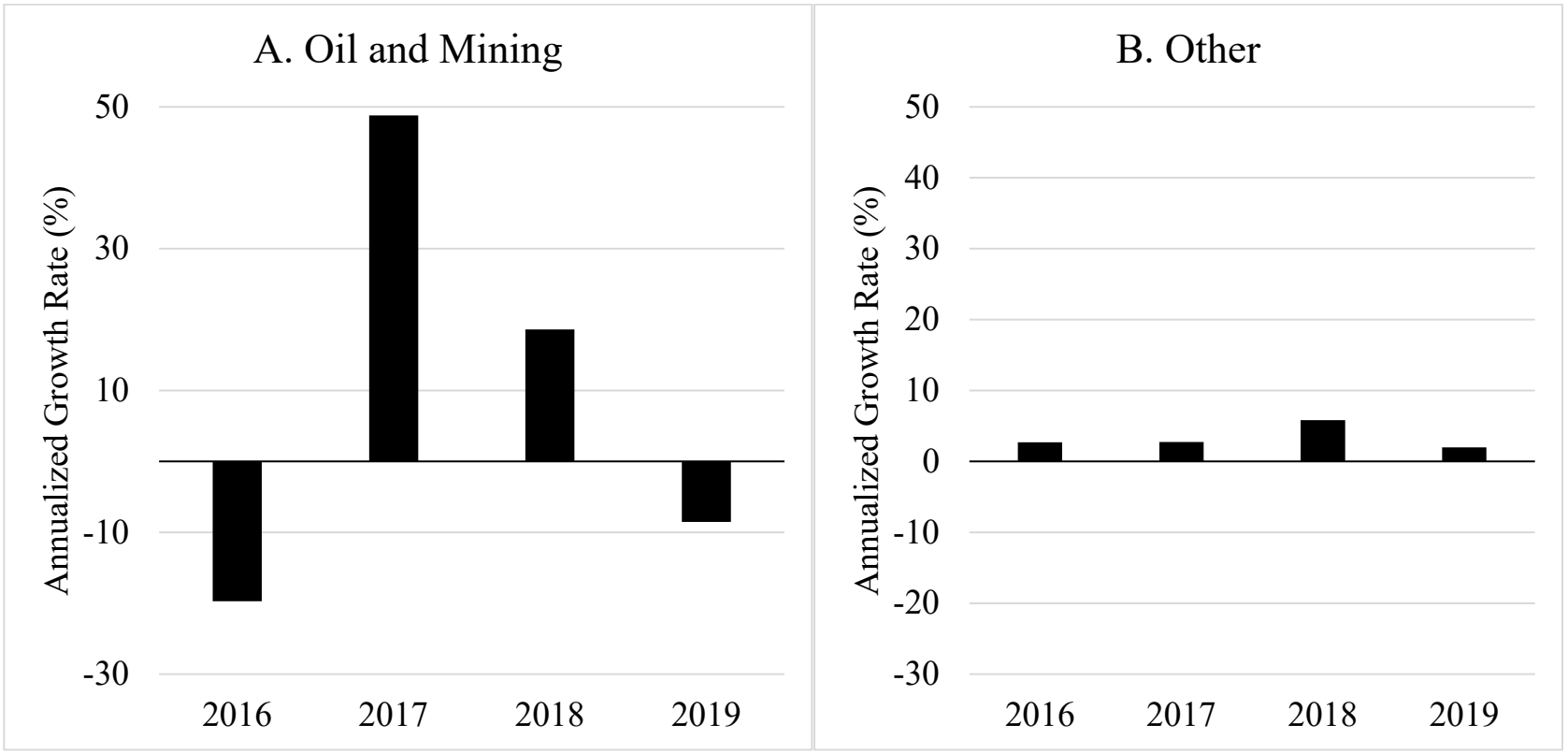
Figure 1. Predicted vs. Realized Revenues, Selected Components, 2010 - 2019



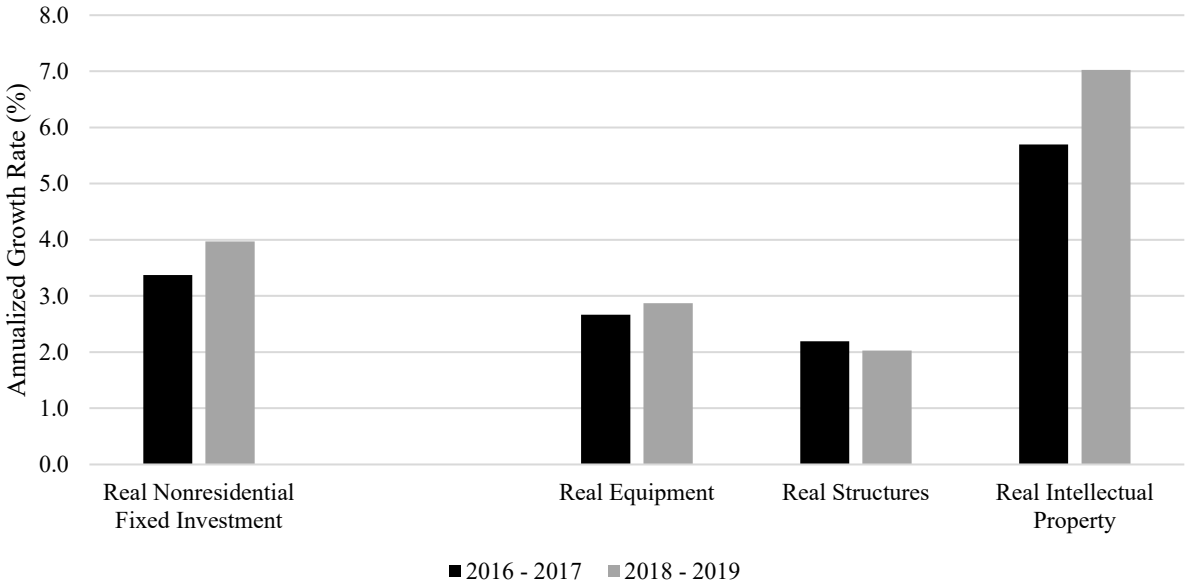
Source: CBO (2017); CBO (2020).

Figure 2. Real Nonresidential Fixed Investment Growth, Oil and Mining vs. Other, 2016 – 2019



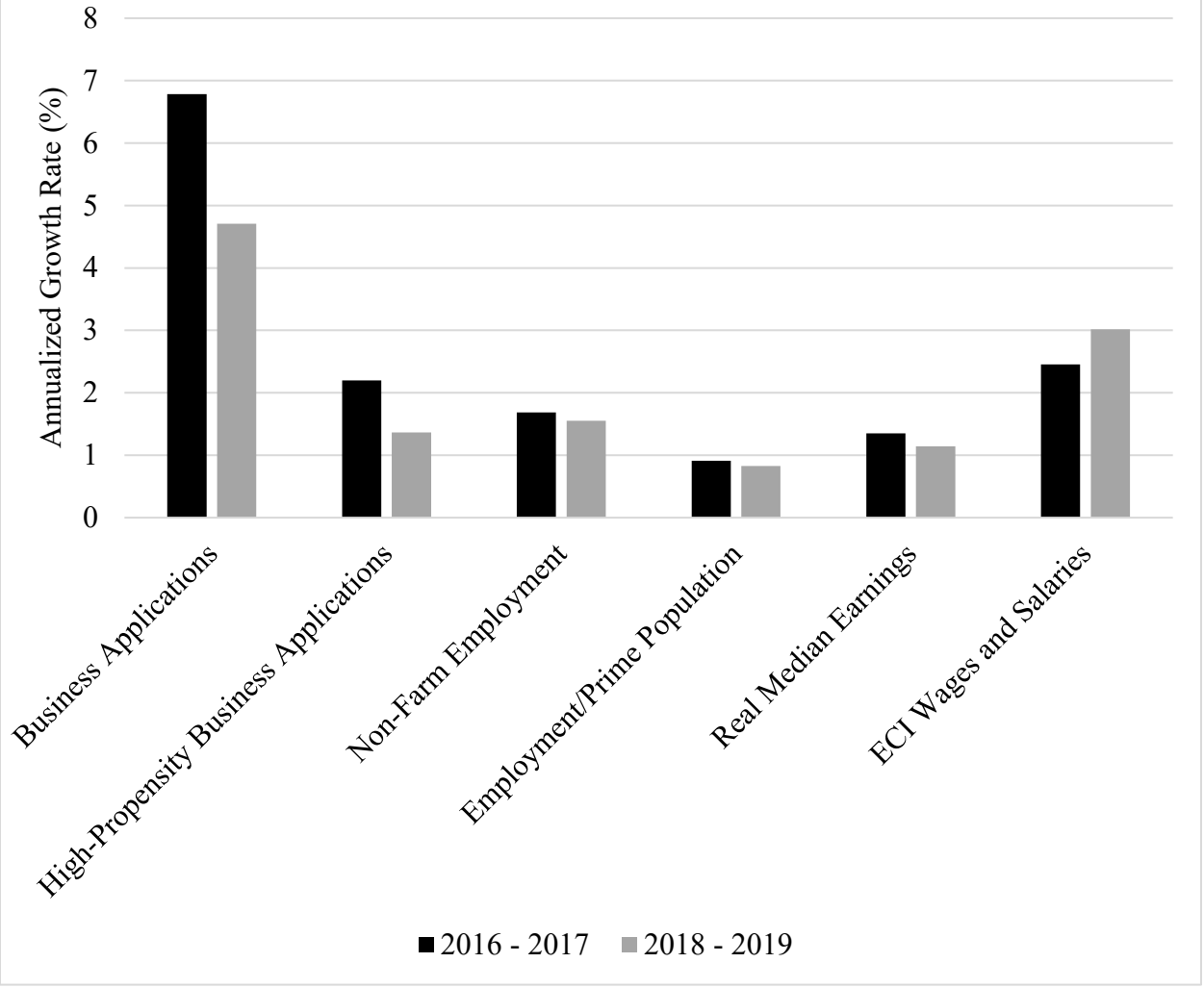
Source: Bureau of Economic Analysis, National Income and Product Accounts, Table 5.3.6. "Real Private Fixed Investment by Type, Chained Dollars," Table 5.5.6. Real Private Fixed Investment in Equipment by Type, Chained Dollars," and authors' calculations.

Figure 3. Growth in Real Nonresidential Fixed Investment by Asset Type, 2016 - 2019



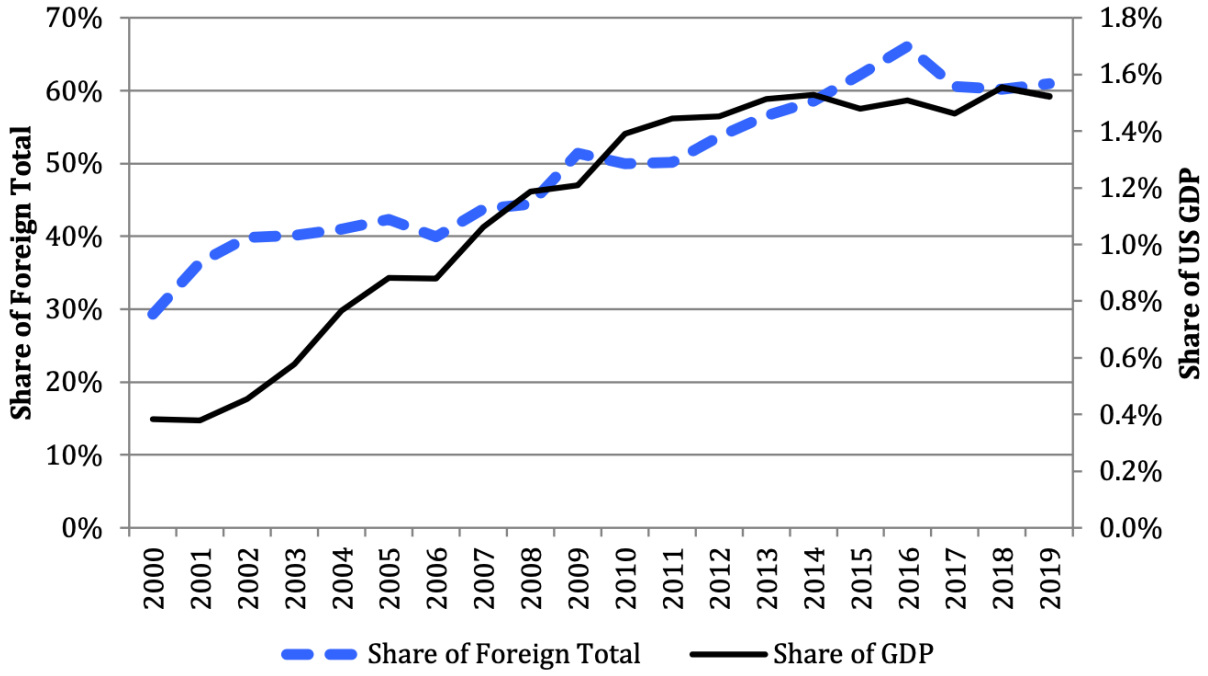
Source: Bureau of Economic Analysis, National Income and Product Accounts, Table 5.3.6. "Real Private Fixed Investment by Type, Chained Dollars."

Figure 4. Growth in Business Formation and Labor Market Indicators, 2016 - 2019



Source: U.S. Census Bureau (2019a, 2019b); Bureau of Labor Statistics, Current Employment and Earnings Tables, Table B-1A, "Employees on Nonfarm Payrolls by Industry Sector and Selected Industry Detail, Seasonally Adjusted;" Bureau of Economic Analysis, Current Population Survey, "Employment-Population Ratio - 25-54 Yrs, Seasonally Adjusted;" Bureau of Labor Statistics, Current Population Survey, "Median Usual Weekly Earnings of Full-Time Wage and Salary Workers by Sex, Quarterly, Seasonally Adjusted;" and Bureau of Labor Statistics, Employment Cost Index Tables, Table 2, "Employment Cost Index for Wages and Salaries, by Occupational Group and Industry: Quarterly, Seasonally Adjusted."

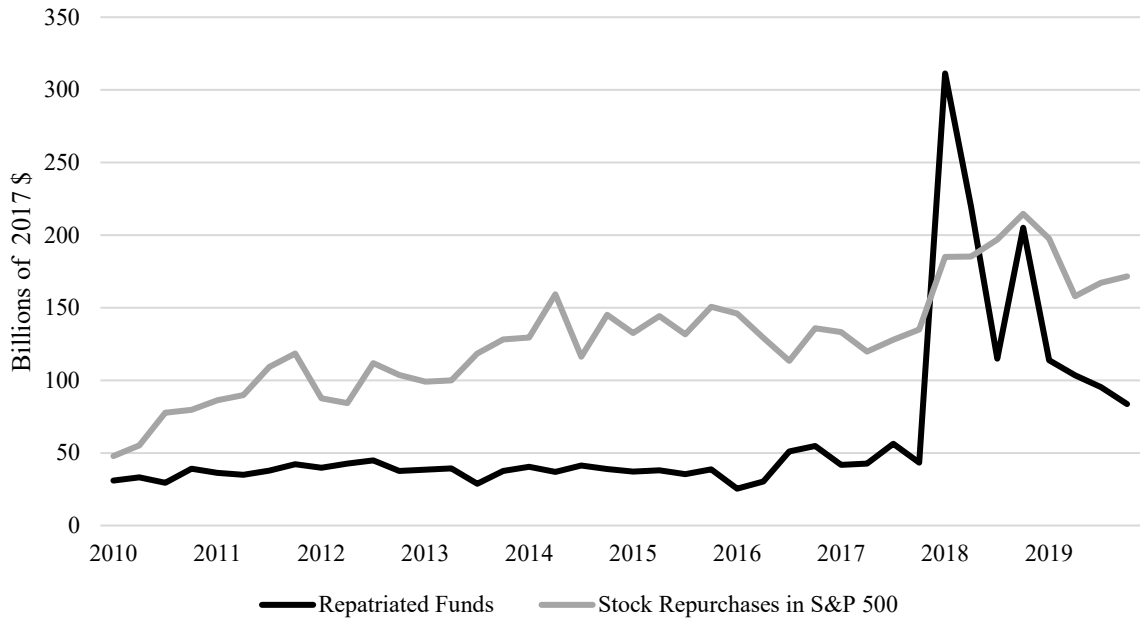
Figure 5. U.S. Multinational Corporation Foreign Income Claimed in Big Seven Havens, 2000-2019



Source: Clausing (2020).

Note: Data are from the Bureau of Economic Analysis. The big seven havens are Bermuda, the Cayman Islands, Ireland, Luxembourg, the Netherlands, Singapore, and Switzerland.

Figure 6. Real Repatriated Profits of US MNCs vs. Real Value of S&P Stock Buybacks, 2010 - 2019



Source: BEA, S&P Dow Jones Indices (2021, 2018, 2014).

Table 1. Change in Costs of Capital Investment After TCJA

A. Change in Marginal Effective Tax Rates (percentage points)

	All Business			Corporations			Pass-throughs		
	Equipment	Structures	Intellectual Property	Equipment	Structures	Intellectual Property	Equipment	Structures	Intellectual Property
Congressional Budget Office (2018b)				-8	-7	-6	-9	-3	-8
DeBacker and Kasher (2018)				-10	-8	-1	-10	-7	-1
Gravelle and Marples (2019)				-9	-9	21	-14	-5	2

B. Change in User Cost of Capital (percent)

	All Business			Corporations			Pass-throughs		
	Equipment	Structures	Intellectual Property	Equipment	Structures	Intellectual Property	Equipment	Structures	Intellectual Property
Gravelle and Marples (2019)	-3	-12	3						
Barro and Furman (2018)				-3	-10	2	0	1	1