Chairman Wyden, Ranking Member Crapo, and distinguished members of the Committee, I appreciate the opportunity to participate in this hearing about the effect of taxes on domestic manufacturing. I am a chaired professor at the Sloan School of Management at the Massachusetts Institute of Technology. My research focuses on the effects of taxation and accounting on corporate decision-making and on the intersection of tax and accounting such as the accounting for income tax and book-tax conformity. I am an editor at the Journal of Accounting and Economics and I am the Area Head of Economics, Finance, and Accounting at the Sloan School.

The main points of my testimony are as follows. First, a competitive statutory corporate income tax rate is an important tax policy objective and we should endeavor to maintain a rate that is competitive with the rest of the developed world. Second, research and development incentives are vital and the evidence suggests that such policies are effective at incentivizing research and development in the U.S. Third, targeted tax incentives for strategic industries or activities can also be effective but the trade-off should not be a relatively high corporate statutory income tax rate. Finally, reenacting a corporate alternative minimum tax could negate tax incentives for investment and would not be a good policy option, especially if the minimum tax were based on financial accounting income.

Maintaining a competitive corporate income tax rate

Prior to the Tax Cuts and Jobs Act of 2017 (TCJA), the U.S. had one of the highest statutory corporate income tax rates in the world at 35 percent. As I (and many others) testified in prior Congressional hearings, that high corporate income tax rate in combination with our prior international tax regime led to many negative economic outcomes. Some of these outcomes included, for example, economic incentives to move operations and profits to other countries, high cash holdings in foreign subsidiaries, higher corporate debt in the U.S., and a relatively
disadvantaged competitive position in the market for corporate control (i.e., acquisitions). Further, there was pressure for companies to invert, or leave, the U.S. in terms of tax residency.

In particular, our high corporate tax rate and international tax regime prior to the TCJA led, in some cases, to strong incentives to manufacture in foreign locations. For example, U.S. multinational corporations that placed high-profit intellectual property (IP) in foreign subsidiaries to benefit from the lower tax rates in those jurisdictions often structured their operations in a manner that would not subject the foreign profits to current U.S. taxation (e.g., Subpart F). In many cases, this meant conducting manufacturing outside of the U.S. Thus, our tax rules prior to the TCJA resulted in incentives to manufacture outside of the U.S. because to minimize the taxation of intangible profits on sales outside the United States, foreign manufacturing was necessary.

After the enactment of the TCJA, our federal corporate statutory income tax rate is now 21 percent. According to OECD data, our rate including subnational taxes is estimated to be 25.8 percent. The OECD reports that the OECD average combined national and subnational rate is 23.3 percent and the G20 average rate is 26.9 percent. Thus, our corporate income tax rate is now clearly more in line with the average corporate income tax rates around the world; but we are by no means a tax haven. The U.S. now has a competitive domestic corporate income tax rate.

The research consensus is that tax policy affects investment (Hassett and Hubbard 2002; Hassett and Newmark 2008; Desai and Goolsbee 2004; Djankov et al. 2010; Bond and Xing 2015). A large area of research regarding tax rates and investment is the cross-country study of tax rates and foreign direct investment. The evidence from these studies is consistent with a negative relation – as host country tax rates decrease, foreign direct investment into that jurisdiction increases, all else constant.

It is difficult to assess the importance of certain TCJA provisions or attribute the changes in observed corporate behavior to any one part of the TCJA (or in many cases even to the TCJA as a whole) using archival data. However, my co-authors and I recently surveyed some U.S. companies about the TCJA. We asked companies what provisions of the TCJA were important to

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1 See Foley et al. (2007), Graham et al. (2010), and Hanlon et al. (2015) for research on these outcomes.
2 The incentives to manufacture outside the U.S. also occur in other fact patterns.
their business using a rating scale between 0 (not important at all) and 4 (very important). Of the 161 C corporations (both multinational and domestic-only businesses) that answered the question, the lowering of the corporate statutory income tax rate received a rating of important or very important by 89 percent of the respondents. No other provision of the TCJA received this high of rating in the subsample of C corporations. This is consistent with ex ante surveys about tax reform. For example, in the early 2000s, the Tax Council Policy Institute asked multinational corporations to rank tax reform options; a lower corporate tax rate was the highest rated option.\textsuperscript{7}

We also asked what provisions within the TCJA led to changes in behavior, specifically in investment in the United States. Tax policy is only one of many factors that determines whether or where a company will make an investment. For example, other determinants include the availability of positive net present value investment opportunities to invest in, proximity to customers, supply of qualified labor, government regulations and requirements in each jurisdiction, as well as other factors. Thus, I would not expect the TCJA to change investment decisions at every company. Consistent with this, in our sample of firms, roughly 26 percent of C corporations responded that they increased U.S. capital investment in response to the TCJA. When asked about how important certain provisions were in the TCJA in terms of decision-making with regard to capital investment, 85 percent of these C corporations that increased U.S. capital investment said that the reduction in the corporate statutory income tax rate was important or very important in their company’s decision to increase U.S. capital investment.

The changes in the TCJA, including the lower statutory corporate income tax rate, full expensing of domestic investment, and the Foreign Derived Intangible Income (FDII) provision, altered incentives to place IP offshore and altered incentives to manufacture offshore. While there are some examples of companies repatriating IP back to the U.S., it is not clear that repatriation of existing IP back to the U.S. will be a dominant decision as a result of the TCJA.\textsuperscript{8} However, in terms of a company’s next marginal decision, the tax incentives under the TCJA are more likely to lead to the decision to retain IP in the U.S. and also to manufacture in the U.S., all else constant. The TCJA provisions (e.g., lower corporate tax rate and FDII) help mitigate the incentives to manufacture offshore and the provisions could be strengthened by giving taxpayers certainty that

\textsuperscript{7} Tax Council Policy Institute (2005).
\textsuperscript{8} Horst (2020).
those provisions will remain in place. Finally, the evidence so far with respect to another outcome after the TCJA is that corporate inversions out of the U.S. have stopped. The pressure to leave the U.S. because of our previously onerous tax system has subsided.

**Tax incentives other than a competitive income tax rate**

Beyond competitive tax rates, targeted tax incentives are often desirable. The tax treatment of research and experimentation/development is a good example. When a business determines whether a research project they are considering is a worthy investment, it will conduct a cost-benefit calculation to determine the budget and amount of investment. In such an analysis, the business will focus more on benefits to itself rather than benefits to society. However, research and the production of new knowledge have externalities, in other words, benefits extending past the business to society as a whole. A clear, current example are the COVID-19 vaccines. The profits from the vaccines to Pfizer, Moderna, and Johnson & Johnson will be small compared to the societal and economic benefits of ending the pandemic. In many such situations, businesses are likely to undertake too little research because they would bear all of the costs but would not reap all of the benefits. As a result, one of the policy arguments for the research tax credit is that because society reaps some of the benefits it should also bear some of the costs for firms to undertake more research. Thus, incentives should be provided to companies to avoid the underinvestment problem from a societal perspective. One way to do this is through tax incentives.

Created in 1981, the U.S. research credit is in IRC Section 41 *Credit for Increasing Research Activities* (known as the research and development credit, research and experimentation credit, or simply the research credit - the term I will use). At a very high level, taxpayers can claim a research credit equal to 20 percent of the amount of qualified research expenses in a taxable year that exceed a ‘base’ amount for that year. In other words, the credit is for incremental spending on research. There is a simplified alternative approach (14 percent and a different base) and start-up firms have a different base reference than mature firms. The tax credit works in conjunction with allowed deductions for research under Section 174; the deductions allowed are reduced by the credit, or, alternatively, taxpayers can elect to claim a reduced credit instead of reducing deductions. Unused research credits can be carried forward for 20 years. In addition, because start-

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9 The credit was made permanent in the Protecting Americans from Tax Hikes (PATH) Act of 2015.
ups often have little to no income tax liability, certain start-ups can elect to apply a portion of their research credit against their payroll tax liability instead of their regular tax liability.

Innovation in the manufacturing industry is driven by research and development intended to improve, for example, manufacturing methods, processes, and systems as well as to create and develop products.\textsuperscript{10} According to IRS data for 2014 (the last year with research credit data available on the IRS website), the manufacturing industry claimed roughly 60 percent of the research credits claimed by corporations.\textsuperscript{11}

The research that examines the effectiveness of tax incentives for research and development (R&D) spending provides evidence consistent with the conclusion the research credit increases R&D spending and that the benefits of the research credit exceed the costs (Berger 1993; Gupta et al. 2011; Rao 2016; Bloom et al. 2019).\textsuperscript{12} Many other countries and many of the U.S. states have research incentives as well.\textsuperscript{13}

Similar to the research credit, there may be other situations where there are societal or strategic reasons to provide tax incentives for certain activities due to the externalities. Some examples include ‘green energy’ (e.g., wind and solar energy, electric cars and battery/electricity storage capabilities). Such investments are likely not profitable for an individual business until there is a basic level of development, a critical mass, and ready infrastructure for the broad use of these alternative energy sources. Thus, if a policy goal is to motivate a shift to such alternative energy sources and reduce the social and environmental cost of carbon, then it makes sense for the government to subsidize, through the tax code or otherwise, these activities until they are profitable – when a company’s cost-benefit analysis would lead it to invest absent a tax credit.\textsuperscript{14}

\textsuperscript{10} See Pisano and Shih (2012) for a discussion of why and under what conditions keeping manufacturing and R&D geographically close increases innovation.


\textsuperscript{12} For example, Berger (1993) estimates that the R&D spending-to-sales ratio for firms that can use the credit increased after 1981. Berger (1993) estimates that the credit induced $1.74 of additional spending per dollar of foregone revenue. Gupta et al. (2011) estimate that for firms that qualified for the credit, there is an additional $2.08 of additional research spending per dollar of foregone revenue. See Hall and Van Reenen (2000) for a review of the literature.

\textsuperscript{13} In comparison to other countries, a recent OECD report concludes that the U.S. R&D tax subsidy rate is below the OECD median but that U.S. total government support to business R&D as a percent of GDP is higher than the OECD median. (OECD (2019), “R&D Tax Incentives in the United States, 2019” www.oecd.org/sti/rd-tax-stats-united- states.pdf, Directorate for Science, Technology and Innovation, December 2019.)

\textsuperscript{14} This includes tax credits to consumers, which allows businesses to charge higher prices (e.g., electric cars).
A recent, but slightly different, example includes concerns about the lack of supply and manufacturing of certain goods in the U.S., in particular semiconductors. The concerns existed before, but have been exacerbated by the current global pandemic. Much of the manufacturing of semiconductors occurs outside of the U.S. and there is now a global shortage of semiconductors. One piece of legislation that attempts to address diversification of sourcing and increase production ‘at home’ in the U.S. is the “Creating Helpful Incentives to Produce Semiconductors for America Act” or the “CHIPS for America Act.” A portion of the CHIPS for America Act yet to be enacted is a proposal for an investment tax credit for investments in qualified semiconductor equipment or qualified semiconductor manufacturing facilities. My understanding of the proposal is that the investment tax credit would start at a 40 percent credit for equipment acquired, or facility investment expenditures incurred, before January 1, 2025, and decrease in amount over time (30 percent for investments in 2025; 20 percent for investments in 2026, and be completely phased out (0 percent credit) in 2027). Based on the research evidence with respect to other investment incentives, it is likely that such a credit would incentivize investment in production facilities and equipment in the U.S. However, to maximize the responsiveness, the statutory corporate tax rate will need to remain competitive such that the tax burden going forward does not put manufacturing in the U.S. at a competitive disadvantage relative to manufacturing overseas. If there are significant risks of future tax rate increases, temporary investment incentives will have much less impact.

Another example of a tax incentive beyond a competitive tax rate, is what is known as bonus depreciation. This is not a tax credit but rather accelerated depreciation deductions for qualified investments. Bonus depreciation was introduced in the U.S. in 2002 and 2003 with the policy intent of increasing investment. The original provisions provided for an immediate deduction of up to 30 percent (2002 legislation) than 50 percent (2003 legislation) of the cost of certain assets put in place during a specified time period. Studies by House and Shapiro (2008) and Zwick and Mahon (2017) provide evidence consistent with bonus depreciation leading to significant increases in investment. The investment response varies based on expected benefits, for example, the response is concentrated in asset classes where the benefits of bonus depreciation would be the greatest and responses are stronger when cash flow benefits are immediate. In addition, small firms respond more to the incentive than large firms. While the empirical results are possibly due, in part, to some timing effect (investments made earlier than otherwise would
have been the case) and substitution effect (from asset classes not eligible for bonus depreciation), the results show that investment decisions are sensitive to tax policy.

The bonus depreciation provision was expanded and contracted over the ensuing years. In the TCJA, bonus depreciation was expanded to 100 percent, full expensing. Meaning the cost of qualified asset purchases (new or used) can be deducted in full in the year of acquisition. The provision applies to property placed in service after September 27, 2017 and before January 1, 2023. Thereafter, the bonus depreciation percentage phases down annually through 2026.15 We asked about the TCJA expansion of bonus depreciation in our recent survey of tax directors. The data are that 53 percent of the C corporation respondents to the question rated the expansion of bonus depreciation as important or very important to their company.16

I also note that prior to the TCJA there was an incentive in the tax code called the Domestic Production Activities Deduction. This provision was in Section 199 of the tax code and was enacted in the American Jobs Creation Act (AJCA) of 2004. The provision allowed a deduction of a portion of manufacturing income. The research evidence regarding this provision is generally that it did serve to increase investment (Lester 2019; Ohrn 2018).17 However, in my opinion, lower overall business income tax rates are a much simpler and better approach of lessening the tax burden on manufacturers than the prior Section 199 Domestic Production Activities Deduction.

Looking forward with respect to investment tax incentives, it is important to consider future changes scheduled in the TCJA. Beginning in 2022, the TCJA requires research expenditures to be capitalized and amortized ratably over a five-year period rather than immediately deducted as is the case under current law. In addition, bonus depreciation begins to phase down starting in 2023. Thus, both of these tax incentives are scheduled to weaken, not strengthen, in the near future.

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15 Property with longer production periods are allowed an additional year of full expensing. The TCJA also increased the Section 179 expense election limits.
16 We also have a small number of pass-through businesses in our sample, 19 of which answered this question. Of those businesses, 74 percent responded that the expansion of bonus deprecation in the TCJA was important or very important to their company.
17 There is some evidence that the effects were concentrated in domestic-only companies (the effects were not strong for multinational companies) and that there was some substitution effect such that the increase in investment came at the cost of a decrease in labor (Lester 2019).
Another, less obvious, upcoming change from the TCJA that may weaken some investment incentives is in the interest deduction limitation (Section 163(j)). The rule has other components, but primarily the TCJA’s modification to Section 163(j) limits the net business interest expense deduction to 30 percent of ‘adjusted taxable income.’ Currently, ‘adjusted taxable income’ is defined as the tax-based measure of the financial statement metric of EBITDA – earnings before interest, taxes, depreciation, and amortization. In other words, it is taxable income after adding back interest expense deductions, depreciation deductions, and amortization deductions. However, for taxable years beginning after 2021, the ‘adjusted taxable income’ computation will change to be a tax-based measure of EBIT – earnings before interest and taxes. To put this directly, depreciation and amortization will no longer be added back to taxable income, making ‘adjusted taxable income’ a lower number than it was when it was a proxy for EBITDA. What all this means is that after this change takes effect, more interest deductions will be disallowed, all else constant. The part that is less obvious is that the EBIT-based limitation could, in some cases, weaken the incentive effects of bonus depreciation. This will occur because more depreciation expense from new investment will lower the tax-based EBIT and thus, lower the interest limitation. Thus, in some cases, part of the tax benefits a company obtains from additional depreciation will be offset by a loss in interest expense deductions, even if the new investment is equity financed.

**A corporate minimum tax would negate many tax incentives**

Above, I have discussed the benefits of certain tax incentives and some scheduled changes that will affect them. In addition, there are proposed tax changes that would negate, possibly unknowingly, many investment incentives. These proposals often include using financial accounting income as a backstop or benchmark for taxable income. When considering such proposals, it is important to be cognizant that financial accounting income and taxable income are computed to serve very different purposes. Financial accounting is meant to provide outside stakeholders, for example investors and creditors, with information about the firm’s economic performance. Taxable income is intended to assess tax liability in a fair and equitable manner in order to raise revenue for public finance and achieve a variety of other social objectives.

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18 I describe the calculations under Section 163(j) at a very high level, abstracting from details. There is an exception for small businesses. The limitation was modified for 2019 and 2020 as part of the CARES Act.
President Biden’s tax plans include such a proposal through the resurrection of the Alternative Minimum Tax (AMT) for corporations. We do not have all the details, but his campaign plan advocated for a minimum tax on corporations with book profits of $100 million or higher. Corporations would pay the greater of their regular corporate income tax or the 15 percent AMT while still allowing for net operating loss carryovers and foreign tax credits.

The Biden proposal is reminiscent of an adjustment put into place in the Tax Reform Act of 1986 - the Business Untaxed Reported Profits (BURP) adjustment (also called the Book Income Adjustment (BIA)). The BIA was computed as 50 percent of the difference between the pre-tax financial accounting income and the alternative minimum tax base (before the BIA) for U.S. entities. If this was positive, meaning financial accounting income exceeded the pre-BIA AMT, then the 50 percent differential was added. If the pre-BIA AMT base was higher than financial accounting income, then no adjustment was made. When enacted, this adjustment was to apply for 1987-1989 and then a new method of computing the AMT would apply.

President Biden’s proposal seems to be targeting companies who appear to report large accounting profits but show little-to-no tax expense in their financial statements. It is difficult to discern if a company is paying U.S. taxes based on financial accounting disclosures. However, even if some companies are not paying income taxes because their legitimate deductions are high, creating a minimum tax based on financial accounting earnings is not the answer.

First, an alternative minimum tax, especially one using financial accounting earnings, significantly increases complexity. Second, such a policy negates the targeted policies I discuss above. For example, financial accounting employs (generally) straight-line depreciation over the useful lives of assets. This results in the expense being recorded in the same accounting period as the income earned from the asset. Thus, using financial accounting income as part of an AMT base will essentially take the tax benefits from bonus depreciation away because depreciation is not accelerated for financial accounting. A similar result will occur for other investment incentives in the tax code and will weaken the effectiveness of these policies in incentivizing investment.

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19 The corporate alternative minimum tax was abolished in the Tax Cuts and Jobs Act in 2017.
20 Depending on how the rules are written, the effect of the minimum tax could be very harsh. For example, during periods of accelerated depreciation the minimum tax would apply denying the deduction, while in later periods with no remaining taxable depreciation, the higher taxable income would be the tax base.
21 Park (2016) examines a 1999 tax change in the depreciation allowances for the corporate alternative minimum tax. Park (2016) finds that firms subject to the AMT increased investment after asset lives were shortened for AMT
In other words, the incentive would be present in the regular tax system but not in the alternative tax system. Why create such a complicated tax policy where incentives appear to be there but really are not? It would be better to prioritize the goals of the tax system and write the tax code in a manner consistent with those priorities.

Finally, using financial accounting income as part of the alternative minimum tax base creates another problem. The evidence from the studies of outcomes around the Tax Reform Act of 1986 suggest that companies responded to such a policy by altering how they report financial accounting income – companies deferred more income into future years. This behavioral response poses serious risks for financial accounting and the capital markets. If managers are not reporting income in a manner that best conveys their private information about firm performance, the information in financial accounting earnings will decline. In addition, if companies start reporting lower financial accounting earnings as a result of the minimum tax, the minimum tax will not raise as much revenue as revenue estimators likely expect.

Conclusions

There are many factors that affect a company’s decisions about whether and where to invest; taxation is often one of the factors. Maintaining competitive statutory business income tax rates is an important tax policy in terms of attracting and increasing investment. Other incentives such as the research credit, and likely similarly the proposed tax credit for investment in equipment and facilities for the manufacture of semiconductors, are also effective in incentivizing increased investment. However, the perceived risk of future tax rate increases will likely offset targeted incentives to invest, as will some scheduled changes in the TCJA and some proposed changes such as a financial-accounting-based alternative minimum tax.

Thank you again for inviting me to participate in this hearing. I look forward to your questions.

purposes. The evidence is consistent with an AMT system mitigating investment incentives. See Hanlon and Shevlin (2005) for a general discussion of book-tax conformity and increasing the links between the two systems. 22 Gramlich (1991); Dhalaiwal and Wang (1992); Boynton et al. (1992); Manzon (1992); Wang (1994); Dharmapala (2020). See also Choi et al. (2001) for some caution with respect to some of the results in the papers above.
References


