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Next Steps in Tax Reform

Henry Jacoby, David Montgomery and Mei Yuan

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—*Ronald G. Prinn and John M. Reilly,*
Joint Program Co-Directors

Next Steps in Tax Reform

Henry Jacoby¹, David Montgomery² and Mei Yuan¹

"Laws are like sausages: it is better not to see them being made."
—Otto von Bismarck

Abstract: The GOP tax reform, now adopted as the 2017 Tax Cuts and Jobs Act, was intended to cut business taxes to stimulate investment, lower some personal taxes, eliminate deductions and tax credits to help pay for the tax reductions, and move the U.S. toward a territorial tax system and reduce the shifting of profits abroad by U.S. companies. Some of these objectives have been achieved, but at the cost of perverse incentives and distributional effects, and the threat of a substantial contribution to the fiscal deficit. As a result, corrections are going to be required in future years. Many of the Act's undesirable features are attributable to the inability of its drafters to come up with sufficient revenue to compensate for the tax reductions. A CO₂ tax is explored, as perhaps the only measure that is consistent with the declared principles of the GOP leadership and likely to draw Democratic support, and large enough to make up for the Act's revenue-losing provisions. We summarize the process that led to the Act and its major failures. Then, applying the MIT U.S. Regional Energy Policy (USREP) model, we show how, when the Act is opened up for repairs, a CO₂ tax could help correct its flaws while serving environmental goals.

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1 MIT Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, Cambridge, MA 02139, USA.

2 Independent Consultant

1. The Push for Tax Reform

There is widespread agreement that the U.S. tax code creates disincentives to productive investment and labor effort, and that it encourages firms to shift profits to countries with lower tax rates. Also, though U.S. political parties disagree about the details of potential system reform, and have different distributional preferences, there is always a fond hope that the transactions cost to taxpayers can be reduced with a reformed and simplified code. With these objectives in mind, changing the federal fiscal system has long been a focus of the Republican Party. Now with majorities in both houses of Congress and a Republican president, the GOP has accomplished a set of major revisions through the 2017 Tax Cuts and Jobs Act (TCJA). Here we explore the achievement and suggest how the Congress might correct some of its less-desirable features.

Any reform package was necessarily going to be a compromise among competing positions among GOP constituencies, so at the start of the reform effort its leaders produced a statement of the principles they would apply to the task (White House, 2017a & 2017b). They sought lower tax rates for U.S. businesses, a simpler and fairer system of taxes on individuals, a system that encouraged U.S. companies to bring back jobs and profits trapped overseas, and permanence (that is, avoidance of features programmed to expire at some future date). In addition, not included in the GOP statement, it has been the desire of many of its members to avoid increasing the federal deficit in the process. The TCJA comes close to some of these objectives but fails at others, leaving room for improvement.

Even with a majority in both houses, the GOP lacked the 60 Senate votes required to pass a stand-alone tax bill by themselves, and its desired tax changes were not likely to draw the support of Democrats or Independents. The path to tax reform, therefore, was through a budget reconciliation procedure that requires only a majority vote. (Reconciliation may be used to implement new substantive policy, provided it is germane to the budget, as tax reform is.) Besides being limited to budget-related measures, the reconciliation process also triggers a number of arcane and complex Senate rules and practices that limit the actions that can be considered. These include special procedures to control revenue loss during the period covered by the reconciliation bill (10 years in this case), an absolute constraint on any revenue loss in the following years, and restrictions on assumptions that underlie the required revenue estimate.

Achieving the desired tax reductions while working around these constraints naturally led to a search for ways to limit the estimated revenue effect of desired tax reductions. These included revenue-saving reductions in tax expenditures

(commonly referred to as base broadeners or pay-fors)¹ and tax increases on segments of the economy other than the original targets of the reform. Taking things away from constituents is harder political work than giving gifts, so that a revenue deficit has been a consistent feature through the various stages in development of a reform package, and the final bill contains a number of undesirable provisions required to keep the deficit within limits. To correct these problems there likely will be, in the next few years, pressure to re-open the Act for further reform. At that time, one change that would help resolve some of these issues would be additional revenue from a tax on greenhouse gas emissions, likely limited to CO₂. It would serve environmental objectives in addition to fiscal ones, and could draw Democratic support for an overall package.

Here we explore the revenue problem that has bedeviled the reform negotiations, and how an additional revenue source could contribute to the original objectives of the reform effort. In Section 2 we provide a brief primer on the legislative context, and review the process that led to the structure of the Act and its provisions. This history provides background for a summary in Section 3 of the TCJA's main features and flaws. Section 4 then explores the magnitude of the contribution that a tax on CO₂ emissions could make in filling the gap between desire and political reality in the resulting fiscal structure. Section 5 provides a brief summary of needed next steps if the nation is to gain the advantage of this addition to the U.S. fiscal system.

2. How We Got Here

Given the complexity of tax-writing under reconciliation, an assessment of the TCJA best begins with a brief summary of House and Senate rules and procedure. We then turn to the several stages of the process that led to the legislation now in place.

2.1 The Sausage Machine

The Congressional budget process, under which the TCJA was written, starts with a budget resolution that must be passed by both houses of Congress. This resolution sets targets for revenues and spending and provides instructions for the authorizing committees who flesh out the details.²

1 Tax expenditures are defined as “special provisions of the tax code such as exclusions, deductions, deferrals, credits, and tax rates that benefit specific activities or groups of taxpayers.” Disputes about whether or not a particular item is “special” are thus an essential ingredient in the sausage-making process of tax reform (Tax Policy Center, 2016).

2 It was to ensure that this important process could not be held up by a minority that the 1974 Congressional Budget Act specified that budget and reconciliation bills requires only a simple majority in each house. The budget resolution, which constitutes internal guidance to Congress, does not need Presidential approval but the reconciliation bill, which changes substantive law, does.

For example, relevant to use of the budget process for tax reform, the 2018 Senate budget resolution instructed its Finance Committee to “report changes . . . that increase [the deficit] by not more than \$1.5 trillion from 2018-2027” (S. CON. RES 25). Somewhat different guidance was provided by a House resolution, and the two had to be reconciled in a joint budget resolution.

Once the budget resolution is passed, authorizing committees, like Senate Finance, work under its guidance to prepare tax and spending legislation. Then a reconciliation bill is used to sweep their actions into a package consistent with the original budget resolution. The reconciliation bill plays a central role in tax reform because it may contain new legislation necessary to carry out the guidance in the budget resolution.³

The reconciliation process is, in part, an exercise in accounting, to check whether committee actions are consistent with instructions and add up to the required totals. According to the rules of the House and the Senate, the budget committees have the authority to adopt expenditure and revenue estimates, but normally they rely on the Congress’s Joint Committee on Taxation (JCT) and Congressional Budget Office (CBO) for the so-called “scoring” of the changes. Relevant to the following discussion, these agencies estimate revenue impacts taking congressional acts literally: e.g., if a tax reduction is due to expire (“sunset” in tax jargon) in some future year, they assume the law as written will be followed, and revenues rise.

For most budget issues these estimates are based on a single macroeconomic forecast which is assumed to be unaffected by the legislation being analyzed. This so-called “static” analysis works well for legislation that is not expected to have a major effect on the economy. This expectation does not hold for major tax legislation, however, especially when it is designed to increase incentives for investment. To deal with this issue, the JCT produces a “dynamic” estimate that takes account of the way changes in spending or taxation are expected to affect the growth of the economy, and thereby change the revenue effect of the tax changes. Non-governmental organizations, like the Tax Foundation (TF) and the Tax Policy Center (TPC), also produce both static and dynamic estimates of the effects of major tax bills.

Analysis by these organizations yields very similar static estimates, since they all employ nearly identical methodolo-

gies and data,⁴ but they do not necessarily agree on dynamic revenue effects. The largest differences are attributable to alternative ways of representing the impact of taxes on the after-tax return on investment, on assumptions about the response of investment to those changes, and on the degree to which increased public investment crowds out private investment. There are serious bases for disagreement about all these factors.

On 4 October 2017, the House passed its Budget Resolution, setting its budget for fiscal 2018 and putting forth appropriate budget levels for 2018-2027 (H.Res 553). It instructed the House Ways and Means Committee, which originates tax legislation, to formulate changes in law that would achieve \$52 billion in deficit reduction over the period 2018-2027, and it laid out broad principles to be followed in the reform. Normally a compromise between the two houses would be worked out in a potentially time-consuming House-Senate conference, but in this instance, to avoid delaying the tax reform effort, the House subsequently substituted the Senate’s \$1.5 trillion budget number for its own.

The Senate’s process is more complex than that of the House. Importantly, Senate action on a reconciliation bill is constrained by its Byrd Rule, which prohibits any tax change that would increase the deficit after the 10-year budget period. Under this constraint, tax reform must be designed either to maintain revenue neutrality thereafter, or to provide for some tax cuts to expire near or at the end of the 10 years. The use of dynamic estimates to score the 10-year deficit is also restricted in the Senate. Dynamic revenue estimates are relevant in the debate about potential effects on the fiscal deficit, and perhaps could be used under House rules in scoring the tax change. To pass Senate rules, however, the reform package is required to show, in a static estimate, that the \$1.5 trillion constraint is met. It is the torturing of the tax code to satisfy these two provisions—static scoring and the Byrd Rule—that has led to some of the unfortunate features of the Act.

The TCJA that emerged in December 2017 was the result of a House reconciliation bill passed on 16 November 2017, a somewhat different Senate bill passed on 2 December 2017, resolution of the differences between them by a House-Senate conference committee (followed by a final bit of drama when the Senate parliamentarian ruled that the conference bill contained minor provisions that violated Senate rules), and then final passage of the reconciliation

3 Senate rules are particularly strict on what “carrying out” instructions mean, to the extent that only the Finance Committee, to which the instruction was directed, may propose legislation to carry it out.

4 Static revenue estimation relies on a database of individual return data prepared by the IRS and economic forecasts prepared by CBO. Producing a static revenue estimate is much like creating a new version of tax software like TurboTax© and recomputing everyone’s taxes using last year’s data inputs, extrapolated into the future using the official forecast adopted by the budget committees. As a government agency, the JCT gets somewhat more recent data than private or non-profit estimators.

bill on the House and Senate floors on 20 December 2017—with intensive lobbying and tweaking of provisions at each step along the way. But the reform process started much earlier with ideas developed by House leaders.

2.2 Evolution of the Reform Package

The current drive for tax reform was initiated by House Speaker Paul Ryan when head of the House Ways and Means Committee, and it was based on ideas the GOP has long espoused.⁵ Its key objectives were rate reduction, simplification, a territorial tax system and permanence—all without raising the federal deficit. To achieve deficit neutrality, the reform was intended to eliminate many individual tax expenditures and virtually all business tax expenditures. Simplification and rate reduction are self-explanatory. Under a territorial system taxes are collected only

on income earned within a nation's borders, which would be a change from the then U.S. system that placed a tax obligation on worldwide income (Tax Foundation, 2012). It was argued that this change would avoid the shifting abroad of U.S. business and intellectual resources. Permanence expressed an intention to end the practice of extending tax reductions for only a limited period of time in order to avoid confronting their long-term deficit impact. Though important details have changed as these original reform ideas went through the sausage grinder, and unrelated items were added, the structure of the TCJA is essentially a modification of a 2016 House Blueprint (Tax Reform Task Force, 2016; Nunns *et al.*, 2016). We start with the Blueprint's provisions, and then follow their evolution over time and through the two houses of Congress.

2.2.1 The House Blueprint

The provisions of the various versions of the tax reform can be summarized as in the left-hand portion of **Table 1**, aggregated into four bundles: Individual Taxes, Business

⁵ Ryan was not the first in this round of reform: in 2014 an earlier Ways and Means Committee Chair, David Camp (R-MI), proposed a Tax Reform Act that promoted many of the same ideas as the TCJA.

Table 1. Evolution of the Tax Cuts and Jobs Act (\$ billions)

	Blueprint TPC 2016–2026	Unified Framework TPC 2018–2027	TCJA JCT 2018–2027	Provision w/ Sunsets	Delayed Start
Individual Tax					
Rates	-1,540	-1,170	-1,210	Ⓢ	
Deductions, Exemptions, Credits	5	480	-52	Ⓢ	
Dividends & Capital Gains	-498				
Repeal/Revise AMT	-427	-440	-637	Ⓢ	
Repeal/Revise Estate Tax	-187	-239	-83	Ⓢ	
Adjust Tax Expenditures	2,290	1,480	677	Ⓢ	
Move to Chained CPI		125	134		
Business Tax					
Corporate					
Rate & AMT Repeal	-1,850	-1,990	-1,390		
Expensing & Limit Interest Deduction	-1,090				
Expensing		-192	-86	Ⓢ	
Limit Interest Deduction		?	253		Ⓧ
Adjust Tax Expenditures	172	232	448		
Amortize R&D Expenditure			120		Ⓧ
Pass-Through Business	-413	-770	-265	Ⓢ	
Foreign Sector					
Border Adjustment	1,180				
Repatriation of Foreign Income	138	161	339		
Tax on Foreign Income	-88	-91	-15		
Other Changes					
APA Individual Mandate Penalty			314		
TOTAL (STATIC)	-\$2,310	-\$2,410	-\$1,450		

Taxes, the Foreign Sector and Other Changes. We consider each in turn.⁶

The goal of changes in individual taxation was to lower rates, simplify tax brackets, and reduce the burden of filing taxes as well as of paying them. The number of income brackets was reduced to three, with the tax rate of the top bracket lowered from 39.6% to 33%. In the place of multiple exemptions and deductions a single, higher, standard deduction was proposed, along with a new per-person, non-child-dependent credit and a \$500 larger child tax credit. The proposal eliminated the Alternative Minimum Tax (AMT), which had been designed to limit the ability of high income taxpayers to avoid taxes through the use of many deductions, and it repealed all estate and gift taxes, paid by high-income individuals. Then, in a change seen as an investment incentive, investment income (capital gains and dividends), formerly taxed at a maximum 20% rate, would be taxed at the same rate as other income. Given that most investment income flows to wealthier individuals such a change in rates would increase taxes, but the proposal also allowed an exemption of half of investment income, resulting in an overall reduction in the tax on these sources of income.

To seek revenue neutrality, provisions were proposed that reduce tax expenditures. All deductions from individual income except for an untouchable few (mortgage interest and charitable contributions) were eliminated, importantly including state and local taxes. Also, eliminated were most personal credits, such as those for child and dependent care.

Proposed changes in business taxation covered both C corporations, and pass-through businesses (sole proprietorships, partnerships and S corporations) whose income is passed directly to owners or shareholders and taxed as personal income. (Pass-through provisions are actually a part of individual taxation, but they are listed here because of the important interaction between these two forms of business organization.) On the corporate side, the tax rate was lowered to 20% (the top rate was then 35%), which would place the U.S. near the median of the rates of other countries. Income of pass-through businesses, then taxed at the same rate as labor income, would be taxed at a 25% rate. As an investment incentive, allowance was made for full expensing of all short-lived capital investments (e.g., machines, equipment) by C corporations. Full expensing increases the value of any investment because it avoids the opportunity cost of not having the tax savings immediately, and the potential erosion of the deduction by inflation. In addition, it was proposed to eliminate the net interest deduction on all new business loans, effectively creating a cash flow tax.

6 Note that the Blueprint estimate is for a different time period than the other two.

As with individual taxes, the revenue loss on the business side would be compensated by eliminating tax expenditures, such as abolishing the Section 199 credits (a special provision for domestic manufacturing) and limiting of operating loss deductions.

Changes in the foreign sector were directed to the territoriality goal, though achieving a true territorial tax system (Todder, 2017) would require more changes than are anticipated in any of the current reforms. The most substantial change in revenue terms was a border adjustment tax whereby, for purposes of the corporate income tax, revenue from exports would not be included in total business revenue, and costs of imported goods would not be deductible. The intent was to change the relative attractiveness of domestic vs. overseas production.

Under the then-current system, U.S. businesses were taxed on their income from exports, and at the same time the goods they exported were taxed by importing countries with a value-added tax (VAT). But exporters from VAT countries to the U.S. paid neither their home country's VAT nor U.S. income taxes. This system led to erosion of the U.S. tax base as companies moved production to countries that provided such favorable tax treatment. The border adjustment eliminated that incentive because the loss of deductibility of imports effectively subjected countries that moved production overseas to precisely the same tax on goods exported to the U.S. as they would have faced if they had produced in the U.S.

Next, there was a provision to encourage U.S. firms to bring home earnings held abroad. Under previous law worldwide earnings of foreign affiliates of U.S. corporations were taxed only when repatriated into the U.S.⁷, and this policy led to an incentive to park, or further invest, earnings of foreign affiliates in other countries. To reduce this drain on the U.S. economy the existing total of deferred foreign-source income would be deemed to be repatriated, and a one-time tax would be applied, higher on earnings held overseas in cash, and lower on earnings that were reinvested domestically (rates of 10% to 4%, well below the proposed new corporate rate, were proposed). Such a change was expected to not only remove obstacles to repatriation of earnings but also gain federal revenue in the process.

Finally, as the final step toward creating a fully territorial system, it was proposed that all taxation of future earnings

7 Although the general rule was that income of a foreign affiliate was only taxable when it is paid out to the U.S. corporation, there were exceptions. These included the income of foreign affiliates of which the U.S. corporation owns more than a specified share (Controlled Foreign Corporations, under what is collectively known as "subpart F" rules), and the income of passive foreign investment companies. Overseas income earned directly by the U.S. corporation rather than through an affiliate was also taxable when earned, leading to most overseas business being conducted through affiliates.

of foreign affiliates of U.S. companies would be eliminated. Thus, with the combination of the border adjustment and elimination of taxes on earnings of overseas affiliates, all corporations – U.S. and foreign – producing goods for consumption in the U.S. would be subject to the same tax rates on earnings from those goods, and no companies would be subject to tax on their production for countries outside the U.S.

Table 1 shows that the static 10-year contribution to the federal deficit as estimated by the Tax Policy Center was \$2.3 trillion (Burman *et al.*, 2017).⁸ Because there are a range of modeling approaches to dynamic scoring, there was disagreement among studies. The Tax Policy Center estimated that macroeconomic feedback would reduce the decade's shortfall by only between \$100 and \$640 billion, leaving a contribution to the fiscal deficit of around \$2.2 trillion. In contrast, the Tax Foundation estimated that macroeconomic feedback would increase revenues sufficiently to offset all but about \$190 billion of the revenue shortfall estimated under the static analysis. The reason for these differences appears to have been the greater sensitivity of the Tax Policy Center models to the effect of higher budget deficits on interest rates, and the crowding-out of business investment.

2.2.2 The Gang of Six and the Unified Framework

Early in 2017 it became clear that the House and Senate had different views about tax reform, even if they agreed on broad principles. Therefore, over the summer, senior Administration officials and Congressional leaders—the so-called Big Six⁹—worked out an agreed approach to tax reform. On 5 October 2017, they announced a GOP Unified Framework (White House, 2017c), which differed from the House Blueprint in items omitted or revised, and details left to be resolved by the congressional committees. The TPC estimated the static revenue implications of the Framework, shown in Table 1, filling gaps with its own assumptions where the Framework's description was vague or where details remained unspecified.

For individual taxation, the main change from the Blueprint was elimination of any change in taxation of interest and dividends. It proposed that the rate remain at the previous 20%, which is substantially below the marginal rate on labor income for most taxpayers with this type of income. However, many individual rates and other details were adjusted. The income levels to which three new brackets

were to apply was not specified, but an estimate was made applying data from earlier GOP plans, leading to a reduction in the revenue loss of around \$400 billion. Revisions in deductions, exemptions and credits under the personal income tax lead to a revenue gain over the Blueprint, but the recovery of revenue from tax expenditures was substantially reduced. Then one new provision was added to the individual code: a change in the price index used to update the tax tables.

Under business tax reform the corporate tax rate was kept at 20%, but other changes were made. One of the most important of the Blueprint's features for spurring investment and growth was the expensing of short-lived capital investments. This provision was maintained but limited to 5 years, the first of the sunset provisions destined to be multiplied in later versions of the legislation. The TPC reports the effect of the expensing provision jointly with the deduction of interest on new investment, which in the Framework was only partially limited, and the combination of the two changes leads to a substantial lower revenue loss. Pass-through income was to be taxed at essentially the same 25% rate as in the Blueprint, and reductions in tax expenditures, as in the Blueprint, were also included.

The biggest change in revenue from the Blueprint to the Unified Framework was in the foreign sector: elimination of the border adjustment. It encountered a great opposition (e.g., from retailers heavily dependent on imported goods), generated controversy regarding its effects on the U.S. dollar exchange rate, and raised questions about consistency with WTO rules.¹⁰

The TPC's estimate of the revenue effects of the Unified Framework (Tax Policy Center, 2017), shown in Table 1, yielded a difference in deficit from the Blueprint of no more than a rounding error given the scale of the change, some \$100 billion over the decade. The TF did not publish an estimate of the Unified Framework, but the net change in its static estimate, compared to the Blueprint, likely would also be small. Their dynamic estimates would likely differ substantially, however, because the TF model appears to be more sensitive to changes in expensing than the TPC model.

The Unified Framework was then an input for work by the House and Senate committees, where agreement on a \$1.5 trillion static revenue loss and the Byrd Rule constrained the reform effort, and the politics of the individual houses began to have their influence.

2.2.3 The House and Senate Bills

Each house developed its own reform version of the Act, and the provisions changed day to day as negotiations pro-

⁸ At the time the Blueprint was presented there yet was no congressional decision about a constraint on the static deficit or the potential role of a dynamic estimate.

⁹ The Big Six included the Secretary of the Treasury, Chair of the National Economic Council, Speaker of the House, Chair of House Ways and Means Committee, Senate Majority Leader and Chair of the Senate Finance Committee.

¹⁰ The idea may not be dead, however, as the revenue may be needed to salvage other provisions and there are proposed modifications that would deal with WTO objections (Nunns, 2017).

ceeded. Also, each house's version was filled with details that matter greatly to particular constituencies but have small revenue impact (e.g., drilling in ANWR, tax treatment of whistleblower awards, Samoa economic development credit, craft beverage modernization, taxation of graduate student tuition waivers). Just a list of the differences that needed to be resolved in the House-Senate conference totaled 45 pages (Joint Committee on Taxation, 2017a). Here we focus on the differences from the Unified Framework, and between the houses, that had substantial revenue impact.

Neither house brought back the border adjustment or the change in taxation of interest and dividends contained in the original House Blueprint. The House had four individual tax brackets and the Senate seven, but the total revenue loss was about the same, and unchanged from the Framework. A key feature of the Deductions, Exemptions and Credits provision is that both versions disallowed the deduction of state and local taxes. The Senate was more generous with some family tax credits, and kept the mortgage interest deduction while the House limited it, yielding a greater revenue loss in the Senate. The AMT was repealed by the House bill but only limited by the Senate, and the estate tax was no longer repealed outright by either bill, but was limited in different ways. Another major addition in the Senate bill was cancellation of the penalty for failure to satisfy the Affordable Care Act's requirement to purchase insurance (the individual mandate), which is not a change in tax policy but would have revenue implications.

On the business side, both houses kept the 20% corporate tax rate, but with the change initiated in different years. Expensing of capital investment was kept by both, again only for five years and with differences in the details, and both imposed a limit on the deduction of interest expense to 30% of earnings (though the definition of earnings differed between plans). On pass-through income, the imposition of a fixed rate in the Framework was abandoned by the Senate in favor of taxation at the individual income rate, but with 23% of the income deducted.

On foreign taxation, the structure of the two bills was the same, but with different tax levels on repatriated foreign income, and differences in provisions intended to limit abuse and base erosion with the elimination of tax on future foreign income.

Each of these bills scored within the \$1.5 trillion limit on a static basis, and each included a number of sunset provisions to avoid a deficit in 2028 and beyond, thus meeting the requirement of the Byrd Amendment. They then were sent to a conference committee, to resolve the differences and produce a compromise version, which was further amended on the floors of the House and Senate before emerging as the Tax Cuts and Jobs Act. It was signed by the President on 22 December 2017.

3. The Tax Cuts and Jobs Act (TCJA)

3.1 Main Provisions

The revenue effects of the TCJA as estimated by the JCT (Table 1) shows a total 10-year (static) revenue loss slightly below the agreed \$1.5 trillion limit (Joint Committee on Taxation, 2017b). A glance at the table suggests that, except for elimination of the border tax and changes in taxation of investment income, the TCJA retains the structure (if not the principles) of the Ryan Blueprint. In its details, the final TCJA is closest to the Senate's version.

For individual taxpayers there are seven individual tax brackets, with the top rate lowered to 37% from the former 39.6%, and the Act includes the Senate's larger standard deduction and child and family tax credits. Collections from the AMT are lowered from earlier levels by a larger exemption, and by a raising of the size of estates before that tax kicks in. Then, in the final bill a number of changes were made in tax expenditures, the most controversial being the allowance of a deduction of state and local taxes, but limiting it to \$10,000.¹¹

On the business side, the corporate tax rate was set at 21%, and the TCJA retained both the provision allowing expensing of capital investment for only five years and the 30% limit on the deduction of net interest expense. A number of adjustments were made in tax expenditures, one of the most important being a provision instituting amortization of R&D expenditure, which under previous law has always been expensed. For pass-through businesses, the Act leaves the tax to be paid at individual income tax rates but establishes a 20% deduction of qualified income.

For the foreign sector, the Act adopts a fundamentally different approach from the Blueprint, with the only commonalities being immediate taxation of accumulated foreign earnings and changes in taxation of future foreign income. The taxes on repatriated foreign income are set at 15.5% for liquid assets (cash and cash equivalents) and 8% for illiquid assets (reinvested foreign earnings). The Act eliminates some, but not all, future foreign earnings from U.S. taxation. Without the border adjustment proposed in the Blueprint, making all foreign earnings tax free in the U.S. would have created an even greater incentive to move assets overseas. As a "backstop" to prevent this erosion of the tax base, the Act imposes immediate U.S. taxes on foreign earnings under a complex set of criteria. These rules include expansion of Subpart F of the tax code's definition of Controlled Foreign Corporations whose earnings are taxed without deferral, and in particular makes earnings from "highly profitable" overseas activities taxable in the U.S. immediately.

11 The net revenue increases attributed to these "adjustments" conceal some new or extended tax expenditures that reduce revenue and fit well the definition of "special" treatment of "specific activities or groups." However, the revenue impact of such provisions estimated by the JCT is small.

A notable feature of the Act, carried over from the House and Senate bills, is the violation of the permanence objective of the reform. Unable to meet the \$1.5 trillion constraint because of the lack of revenue from the border tax adjustment and reduced tax expenditures, and needing to avoid violating the Byrd Rule, the Act sets many of its provisions to expire before the end of the budget period (noted in Table 1 by an **S**). For example, among the individual taxes, the main provisions for tax rates, deductions and exemptions, and the child and family tax credits all sunset at the end of 2025. Additionally, all provisions affecting the AMT and estate taxation expire at the same time.¹² As noted earlier, the expensing provision of the corporate tax sunsets in late December 2022, and the very important changes in the taxation of pass-through income sunsets at the end of 2025. Some of the base-broadeners on the business side also have a delayed increase (indicated by a **D** in Table 1). The allowable interest deduction becomes smaller, and the requirement that R&D expenses be amortized takes effect in 2023.

3.2 Shortcomings of the TCJA

There is much to be learned about the effects of the legislation, with its many interconnecting parts of widely varying significance. It is nonetheless clear that the Act goes some distance in improving domestic and international economic incentives and clearing out some of the underbrush of credits, deductions and tax expenditures. Even at the outset, however, many of the Act's shortcomings are evident as it falls short of the original principles of rate reduction, simplification, territoriality, permanence and deficit neutrality. Many of its shortcomings are attributable, to some degree, to the lack of sufficient revenue from base broadeners to compensate for its tax cuts.

3.2.1 Provisions that Stand Out

The Act reduced rates, both on individual and business income, but it did not achieve coherence in taxation of the two main forms of business organization. Moreover, a main purpose of rate reduction was to spur economic growth, but the growth effect of several supporting changes (e.g., expensing) was blunted in the ultimate form of the Act. Also, the tax expenditure with the strongest rationale as sound growth policy—expensing of R&D expenditures—is eliminated halfway through the budget period.

Despite a few simplifications, particularly in individual taxes, describing the changes in the tax code required a 694-page Conference Report (U.S. House of Representatives, 2017), and a table of its budget impacts prepared by the JCT takes up 10 pages of fine print (Joint Committee on

Taxation, 2017b). Elimination of the AMT and doubling of the standard deduction will simplify tax filing for many individuals. On the business side, however, the three pillars of simplification—replacement of the book of rules on depreciation with immediate expensing, substitution of a border adjustment for all transfer pricing and anti-abuse regulation in international taxation, and permanent elimination of business tax expenditures—cracked and crumbled.

Even the original Blueprint would have taken the fiscal system only partway toward a territorial tax regime, and with elimination of the border adjustment tax the task of creating an effective system became much more difficult. The elimination of taxation on foreign income is a big step in that direction, but the complexity of the anti-abuse provisions together with the substantial delegation of authority to the Secretary of the Treasury to figure out what to do, is likely to create strong opposition to the international provisions of the Act.

The principle of permanence was abandoned with the recourse to sunset provisions to satisfy the Byrd Rule. All the important personal tax changes sunset in 2026, and the critical provisions for expensing of all capital investments phase out after 2023.

The deficit neutrality goal was scrapped once the House acceded to the Senate's target of a \$1.5 trillion static revenue loss, and both Houses eliminated the provisions that would have stimulated sufficient growth to achieve dynamic revenue gains large enough to offset most of the static deficit. This problem is then exacerbated by an error of omission in the Act. It did not cancel tax expenditures that have short-term expiration dates, implicitly assuming they would be allowed to expire—and this now appears unlikely.¹³

3.2.2 Economic and Political Response to the Act

The incentive effects of the TCJA's changes will only be fully understood with time, but several perverse effects seem likely to stimulate a call for correction.

Sunsets. First is the effect of the sunsets applied to expensing, and to most of the provisions that reduce individual income taxes. Inefficient manipulation of investment decisions and personal finances are sure to result. An immediate example of the distortions, even before the bill goes into effect, is the scramble to take advantage of the loophole that allows the paying of 2018 property taxes before the end of 2017, to reduce the effect of the upcoming \$10,000 limit on deduction of state and local taxes. This response is inevitable when taxpayers anticipate major changes in tax law, and will be even more pronounced with sunsets. When personal tax cuts are about to expire, there is likely

¹² Also, indicating the complexity of the Act, sunsets apply to changes taxation of services provided on the Sinai Peninsula and on student loans discharged on account of death or disability.

¹³ The JCT issued an updated list of expiring tax expenditures that (no doubt unintentionally) provides a roadmap for efforts to extend them (Joint Committee on Taxation, 2018).

to be a converse effort to defer deductible expenses and to take capital gains and accelerate income recognition. The consequences for the financial markets of substantial profit-taking and for charitable giving are likely to be disruptive even if they are only temporary.

The most harmful consequences are likely to be on the business side. Temporary expensing is likely to have little positive effect on investment over the entire budget window. Businesses will have a strong incentive to accelerate investments planned to be made after the sunset date in order to benefit from expensing, and investment likely will drop sufficiently after the sunset to offset any permanent effect. In addition, businesses that plan for sequences of investments—like auto companies on a multi-year cycle of investment in design, tooling and assembly line equipment in advance of new model production—will have little incentive to increase investment if expensing is expected to disappear for the later years of their plan.

Unequal Taxation of Substitutable Sources of Income. More consistent treatment of C corporations and pass-through entities might have been possible under the structure proposed in the Unified Framework, but likely due to revenue pressures it was not achieved. The differences in rate structure are likely to lead to wasteful efforts to reclassify income and re-incorporate businesses. This is because the 20% deduction on pass-through business will reduce its tax rate differently depending on the owner's tax bracket, as shown in **Table 2**. For married taxpayers with income above \$238 thousand the tax rate on pass-through income will still exceed the corporate rate of 21%. For those with incomes below that level, the tax rate on pass-through income will be less.

This disparity in tax treatment will likely cause many changes in business organization. In an effort to avoid taxes, individuals may try to classify their earning activity as a pass-through business, and many existing businesses will shift from pass-through to C-corporation, or vice versa, as their particular circumstances dictate. Similarly, the Act's elimination of the deduction for unreimbursed employee business expenses will lead employees to accept reduced wages and salaries in exchange for reimbursement of business expenses—a change that would benefit no one. It would also make expenses harder to control within the company and negate any revenue increases.

In addition, self-employed individuals who now report their income on Schedule C will have an incentive to create a pass-through entity and convert income from self-employment into income of the new entity to be taxed at a lower rate. There also may be opportunities to re-classify what has traditionally been classified as wages and salaries into returns from a pass-through business. To avoid these efforts at tax avoidance, the Act includes guardrails whose effectiveness has yet to be tested.

Table 2. Pass-Through Rate by Income Class

Bracket (\$ thousands)	Rate	Effective Rate on Pass-Through
156 - 238	24%	19%
238 - 425	32%	26%
425 - 480	35%	28%
480 +	37%	30%

Reduction of R&D Incentives. R&D incentives are cut back severely in the Act, though the 10-year saving is only \$120 billion (as shown in Table 1). This change is troubling because there are unique and long-standing public policy reasons for the government to provide broad incentives for R&D. Uncertainty, non-appropriability, and information asymmetry between inventors and investors make the social return on R&D much higher than the private return, even with patent and trade secret protection (Arrow, 1962). Much of productivity growth arises from innovations that would not be possible without continued R&D efforts.¹⁴

There is a Research and Expenditure (R&E) tax credit that is retained in the Act, but it is seen as generally ineffective. The definition of R&E is very restrictive, only increases in R&E expenditures qualify for the credit, and out of \$245 billion of R&D spending only \$8.5 billion was claimed for the tax credit (compared to the \$49 billion that could have been if all were eligible for the 20% credit). The expensing provision was of far greater importance, and revenue estimates imply eliminating it will raise about \$20 billion per year. Based on the statistical evidence that private R&D spending increases dollar for dollar with subsidies, that implies taking about \$20 billion annually out of private R&D budgets. That is about 2.5 times what R&D will get from the retained credit of 7% of total business R&D spending (Montgomery, 2018).

The limited effect of R&D incentives in the Act leaves the U.S. open to competition from foreign countries that have induced U.S. companies to move their R&D centers and intellectual property out of the U.S. These countries extend super credits (tax credits for more than 100% of R&D expenditures) and create patent boxes (low or zero tax rates on income from intellectual property created by R&D in their countries). On top of losing R&D—and increasingly follow-on manufacturing—there are endemic transfer pricing issues for intellectual properties that are unique and for which there is no market test of arms-length prices. The border adjustment tax would have been a very effective tool to keep R&D in the U.S., in that it made pay-

14 A study done for the OECD provides useful insights into how the U.S. supports private sector R&D relative to other countries (Appelt, 2016). The tax subsidy rate for R&D expenditures in the U.S. was estimated by the OECD to be among the smallest across all countries reporting.

ments for foreign IP non-deductible, thus eliminating the incentive to sell or license IP back to US affiliates at inflated transfer prices. But that also did not happen, and now keeping R&D in the U.S. will depend on the effectiveness of untested provisions to tax excessively high licensing fees and payments for IP to foreign subsidiaries.

Failure to Create a Full Territorial System. The Act mirrors the principle behind most territorial tax systems in the world: territoriality with a backstop to prevent profit shifting. The border adjustment would have eliminated most incentives for profit shifting. In the absence of the border adjustment, moving toward territoriality by freeing foreign earnings from U.S. taxes makes the incentives to move production overseas even greater. Recognizing this fact, the Act also creates complex rules intended to limit the erosion of the domestic tax base. In effect, the Act creates a territorial system for low-return assets and a worldwide system for high-return assets.

It remains to be seen whether the provisions of the Act designed to deal with base erosion are too strict or too weak. Either way, the pressure for needing new legislation to tune or replace the system is high.

Along the way, the foreign sector provisions of the Act became much more complex than those of the Blueprint, and their effects on overall tax liabilities of U.S. corporations with global businesses became much more uncertain. Indeed, the actual incentive effects of the international provisions, though intended to lure U.S. firms' profits and investment back into the country, are impossible to predict—particularly when the IRS is given a great deal of discretion in writing the rules. Indeed, some large multi-national corporations that took a neutral position on the border adjustment may well be chagrined to discover that the tax liabilities of their global enterprise turn out to be higher under the Act than they would have been under the original Blueprint. These discoveries will make modification of the international tax section of the Act high on the lobbying agenda of some major players.

Distributional Effects. Importantly, there are the distributional consequences of the Act. The intention of the reform was always to reduce income taxes, and since the bulk of these taxes are paid by higher-income individuals it is not surprising that a large portion of the reduction accrues to them even though in percentage terms the largest percentage reductions accrue to incomes under \$50,000. **Table 3**, from the JCT's analysis of distributional effects of the Act, shows that the percentage reduction in tax rates becomes smaller for income categories from \$10,000 to \$200,000 (Joint Committee on Taxation, 2017c). Then, despite increasing marginal tax rates, other provisions like abolition of AMT and estate taxes provide larger reductions for the \$200,000 to \$1,000,000 cohort. The over \$1,000,000 group gets the smallest percentage reduction due to various phase-outs.

Nevertheless, taxpayers with incomes above \$200,000 receive 50% of the tax reduction in absolute terms, and taxpayers under \$75,000 receive 15%. Different opinions about what constitutes fairness will reach different conclusions about the desirability of this distribution, but without question greater reductions in middle class taxes would have been possible if more revenue from base-broadeners had been available.

Larger Federal Deficits. Finally, and equally serious in our view, is the likely effect of the Act on the federal deficit, and the measures that will be proposed if and when a substantial loss of revenue becomes evident. The TPCs dynamic estimate of the Act's revenue effects, taking account of its potential effect on economic growth, shows a 10-year contribution of around \$1 trillion (Joint Committee on Taxation, 2017d). Projections of debt with just the tax cuts in the Act would bring the Federal debt held in private hands up to 100% of GDP by the end of the 10-year budget period. CBO lists several reasons for concern (Congressional Budget Office, 2017):

- Federal spending on interest payments would increase substantially as a result of the increases in interest rates that are projected to occur over the next few years.
- Because federal borrowing reduces total saving in the economy over time, the nation's capital stock would ultimately be smaller, and productivity and total wages would be lower.
- The likelihood of a fiscal crisis in the United States would increase. There would be a greater risk that investors would become unwilling to finance the government's borrowing unless they were compensated with very high interest rates.

Table 3. Tax Reduction by Income Class

Income Category (2)	Change in Federal Taxes	
	Millions	Percent
Less than \$10,000	-\$396	-5.6%
\$10,000 to \$20,000	-\$1,792	(5)
\$20,000 to \$30,000	-\$2,982	-13.5%
\$30,000 to \$40,000	-\$5,416	-11.5%
\$40,000 to \$50,000	-\$6,728	-10.0%
\$50,000 to \$75,000	-\$23,046	-8.7%
\$75,000 to \$100,000	-\$22,437	-8.0%
\$100,000 to \$200,000	-\$70,372	-7.5%
\$200,000 to \$500,000	-\$65,485	-9.0%
\$500,000 to \$1,000,000	-\$23,947	-9.4%
\$1,000,000 and over	-\$36,853	-5.9%
Total, All Taxpayers	-\$259,454	-8.0%

The problem of the Act's contribution to the federal deficit looms even larger with the prospect that provisions intended to sunset in order to stay within the \$1.5 trillion limit will be extended or made permanent (Committee for a Responsible Federal Budget, 2017). Experience of previous use of sunsets in tax legislation shows that this is likely.¹⁵ Behind every business tax credit and loss provision is an industry lobby for which key provisions in the Act are only a temporary setback, and the 2025 sun-setting of many individual income breaks is already discussed openly as only an accounting trick to get around the \$1.5 trillion constraint and the Byrd rule, and not likely to be allowed in the moment. Also, many of the reductions in tax expenditures are extremely unpopular, and viewed as essential to some well-organized group, so that future changes in the makeup of the Congress could lead to their reinstatement. This prospect is already apparent in the fact that a bill to extend provisions set to expire (35 different tax expenditures, most of them different forms of energy subsidies) was introduced the very day that the Act was signed, and they all were included in a budget compromise that cleared the Congress on 9 February 2018.¹⁶

3.2.3 Pressures for Revision of the Act

With the number of the TCJA's perverse incentives and administrative difficulties that are already apparent, and the many things yet to be learned about its effects, the political pressure to reopen tax reform is likely to be irresistible at some point in the 10-year budget window. Indeed, it is already apparent. Some of these pressures are for good reasons, to fix real problems that arise because good things that could have been done were left out or diminished due to lack of offsetting revenue. For example, sunset provisions play havoc with the effectiveness of the reform in stimulating economic growth, and the Act did not resolve which tax expenditures should be made permanent and which abolished. Inevitably, there will be continuing calls for more tax cuts and new tax expenditures. All these

15 Such action will be in a Congressional tradition of extending tax provisions without paying for them. In 2010, it temporarily extended reductions in tax rates slated to expire at the end of the year, a move that the Joint Committee on Taxation (JCT) estimated would add \$585 billion to the deficit over a ten-year period. In 2013, Congress passed legislation to further extend those reductions as well as other expiring tax breaks—all told, at a cost of nearly \$3 trillion over a 10-year period. And in 2015, Congress extended a number of expired and expiring provisions, of the tax code, including credits for research and experimentation and relief for low-income families. Some of the provisions were extended permanently while others only for a short period, and the JCT estimated that extending such provisions over 10 years would cost \$680 billion (<https://www.pgpf.org/blog/2017/12/tax-extenders-the-potential-hidden-costs-in-tax-reform>).

16 <https://www.heritage.org/budget-and-spending/commentary/the-senates-ugly-budget-deal-would-trample-the-success-tax-reform>
<https://www.accountingtoday.com/articles/tax-benefits-for-racehorses-rum-added-to-bipartisan-budget-deal>

forces will be brought to bear in the context of a deficit that threatens to turn even worse as a result of other spending decisions by the Congress.

All these factors suggest the positive role that could be played by a new revenue source with potential bipartisan support. One possibility is additional revenue from a federal tax on consumption, and a top candidate, offering valuable joint benefits, would be a tax on greenhouse gas emissions, likely limited to CO₂. How such a new tax would interact with the TCJA-adjusted federal tax system, and how much revenue it would raise, has not been examined closely or seriously considered in the tax reform discussion. We now turn to that set of issues.

4. Relieving the Revenue Pressure

Quite apart from the potential contribution to the task of salvaging a flawed tax reform, there have long been arguments for the addition of a tax on greenhouse gas emissions to the U.S. fiscal system, motivated by the climate threat. Economic research dating back to the 1990's has made the case for the economic efficiency of such a measure, compared to regulations and specific subsidies (Goldberg, 1998; Rausch and Karplus, 2015). Furthermore, the preference for an emissions tax is increased by the prospect of a double-dividend if its revenue is applied to reducing the deadweight loss from other distortions in the tax system (Goulder, 1995a, 1995b; Rausch and Reilly, 2015). Though political support has come mainly from Democrats, there also is strong support among a group of conventional Republican leaders, a prominent example being the proposal by the Climate Leadership Council (Baker *et al.*, 2017; Bailey and Bookbinder, 2017). These ideas have been incorporated in a number of bipartisan tax proposals (e.g., Whitehouse, 2017) though none has yet been given serious Congressional consideration.

We explore how such a tax would work in the new fiscal picture using MIT's U.S. Regional Energy (USREP) model (Yuan *et al.*, 2017). USREP is a general equilibrium model of the U.S. economy, energy and greenhouse emissions that disaggregates the nation to 12 regions and 11 sectors, and considers 9 household income classes. Because of the consumer, industry and energy sector detail needed to study energy and emissions issues, the model's representation of the U.S. tax system is necessarily less detailed than those in the JCT, Tax Policy Center or Tax Foundation models. However, parameters of the USREP's fiscal structure can be tuned, using the results of the analysis by one or another of these groups, to faithfully approximate the U.S. economy under the Act and its effect on net tax revenue. A description of the tuning process, along with a summary of the model's features of USREP and underlying data sets, is provided in Supplementary Materials, available at <http://globalchange.mit.edu>.

For this study USREP was tuned to reproduce the \$1.45 trillion static deficit estimated by the JCT (Joint Committee on Taxation, 2017b). Because USREP is a general equilibrium model, the imposition of an approximation of the TCJA's provisions produces a response in the economy, and the model was adjusted to yield the JCT's static deficit with this response in place. USREP is solved on a two-year time step, and its simulation of the revenue change attributable to the TCJA is presented in **Table 4**. Clearly shown are the losses in early years, and the reduction in loss near the end as effects of the sunsets kick in. The total deficit for the period is the same that estimated by the JCT, shown in Table 1.

To illustrate the potential contribution of a CO₂ tax, **Table 5** shows the same U.S. economy and fiscal system with the addition of such a tax beginning in 2018 at \$40 per ton CO₂, and increasing at 4% per year. As in Table 4, the revenue changes in the table are shown in relation to a U.S. economy without the TCJA, and the general equilibrium effects of the TCJA can be seen in a comparison of the two tables. Note the loss in revenue from both business taxes and individual income taxes is larger with the charge on CO₂ in effect. This is because this new tax raises the cost of production, and thus interacts with existing taxes (Goulder, 1995a) to produce a small reduction in economic output.¹⁷ The fiscal deficit, including the \$1.46 trillion CO₂ tax revenue, is then reduced to \$360 billion rather than the \$1.45 trillion in Table 4. Even a lower initial tax of \$20/tCO₂ would make a substantial contribution to the fiscal picture, yielding a total of around \$850 billion over the 10-year period.

The additional source of revenue from a CO₂ tax could be applied to serve many needs. In the unlikely event that all the new revenue was devoted to deficit reduction, the estimated deficit increase would be reduced from the JCT's \$1.45 trillion to around \$355 billion, as shown in the table. More likely, if the tax was adopted in a revision of the TCJA, portions of the estimated revenue could be used to correct specific flaws in the TCJA. For example, it would be possible to keep faith with the agreed \$1.5 trillion constraint and the Byrd Rule while getting rid of some of the sunset provisions attached to individual tax provisions, and reversing incentive-killing provisions on the business side. It also might help deal with expired or expiring tax expenditures, not taken into account in the TCJA but then included in a budget bill two months later. For example, the tax on CO₂ emissions might well remove

17 The GDP impact of the TCJA from USREP is smaller than that in the dynamic analysis by the JCT, an increase of less than one percentage point by 2028 relative to prior tax law. When the CO₂ tax is added to the TCJA, with revenues used to reduce the deficit, the GDP increase from 2018 to 2028 is about half that of the TCJA alone.

the need for tax expenditures for renewable energy—a form of double dividend.¹⁸

Restoring incentives for investment would also have dynamic effects not included in these revenue estimates, in that by stimulating economic growth it would provide more revenues and partially or completely close the revenue gap. Early estimates of the dynamic effect of full expensing by the Tax Foundation attributed dynamic revenue offsets of \$1.3 trillion and an increase in GDP of 5.4% over 10 years to the full expensing provision (Tax Foundation 2017). This application of revenue from an emissions tax would therefore likely have a net result of substantially greater economic growth than the TCJA in its current form.

Of course, an important contribution of adding such a tax would be a substantial reduction in U.S. CO₂ emissions. **Table 6** shows the effects of these changes. The TCJA alone would yield a small reduction in emissions.¹⁹ With the \$40/t CO₂ initial tax U.S. emissions would be reduced by around 15% early in the period, rising to about a quarter

18 Indeed, displacement of energy subsidies and regulation is one basis of conservative support for a CO₂ tax (Baker *et al.*, 2017)

19 With a likely lower cost of capital under the TCJA, the model shifts some electric generation to lower-emitting but higher-capital-cost sources.

Table 4. Revenue Effects of the TCJA (\$ billions)

	2018	2020	2022	2024	2026	2018-27
Individual	-132	-164	-147	-140	21	-1,120
Business	-78	-78	-11	23	-21	-330
TOTAL	-210	-242	-158	-117	0	-1,450

Table 5. Revenue Effects of TCJA with a \$40 CO₂ Tax (\$ billion)

	2018	2020	2022	2024	2026	2018-27
Individual	-158	-189	-170	-161	-4	-1,370
Business	-110	-112	-46	-12	-62	-685
CO ₂ Tax	161	168	172	175	177	1,700
TOTAL	-107	-133	-44	2	111	-355

Table 6. Emissions Reduction under the TCJA with Alternative CO₂ Taxes

	2018	2020	2022	2024	2026
TCJA alone	-0.33%	-0.07%	0.23%	-0.33%	-0.3%
TCJA + \$20 t/CO ₂	-10%	-11%	-13%	-16%	-19%
TCJA + \$40 t/CO ₂	-15%	-18%	-20%	-24%	-28%

by the end. Even a much lower initial tax, say \$20 per ton CO₂, would cut emission by 8% to 16% over the period.

Many proposals for a greenhouse gas emissions tax have appeared in the past decade, accompanied by varying ideas about how to distribute proceeds and whether to alter existing regulatory policies and subsidies. None gained noticeable support in Congress. The current situation may be different, as Congress faces the need for new sources of revenue to cure some of the deficiencies in the TCJA and demands for tax extenders. Likewise, the regulatory context has changed with steps taken by the Administration to roll back climate regulations. Introducing a CO₂ tax would be a step outside current tax law to broaden the base of the federal fiscal system, thus relaxing some of the constraints that led to the current unsatisfactory outcome. It would also bring in different political considerations, as moderate Republicans and Democrats would have one issue to agree on, and potentially begin a bipartisan process to improve on the current outcome of the reform effort.

5. Next Steps

Much thought and analysis went into the design of a tax reform package that would remove disincentives to productive investment, encourage U.S. firms to bring home assets and effort stashed abroad, provide stability in tax system rates and rules, and help control the federal deficit. With the emergence of legislation that ultimately failed to achieve all of these objectives, there will surely be an opening up of its provisions for re-reform of some of its more damaging effects. Hanging over this process will be the rising federal deficit and the need for additional revenue. Given the forces that produced the TCJA, it is highly unlikely this increase in revenue can be found in U.S. income taxes, and increased taxes on labor (e.g., FICA) are even less promising, even apart from their adverse distributional and incentive effects. The target for additional revenue, then, will be some form of consumption tax. A VAT is sometimes proposed, but it would involve a reform much more ambitious than the one just tried. A logical target,

then, with justification (and political support) beyond its potential for revenue, is a tax on CO₂.

When the opening-up of the TCJA comes, it will be important to have thought through the potential role of this type of tax in the fiscal system and, more particularly, how it might be married with the most likely fixes in provisions of the TCJA and implementation of tax expenditure provisions that were left out of the TCJA and remain to be dealt with by the Congress. This preparation will require improvements in both the economic models used to score tax changes and those used to explore their effects on specific industries, sectors of the country and income groups. Facilities used by the JCT, Tax Policy Center and Tax Foundation to score legislation are not able to analyze the way in which such change progresses through domestic and international markets, and models that can do that, like USREP, lack the fiscal system detail to fully understand the interaction among complex business and individual taxes and their influence on exchange rates and other features of the financial system. The weakly coupled macroeconomic models now used to estimate dynamic revenue effects also produce very different results depending on model structure. Marrying features of these different analysis facilities, and reconciling their differences, could produce a much more complete understanding of the next round of attempts to improve the U.S. tax system.

Everything depends on the political climate, of course, and the level of concern with the climate change threat and the fiscal deficit, but a window for consideration of a tax on CO₂ emissions could well open in the context of inevitable revision of the TCJA. Preparation in the months or years leading up to that event will be crucial lest this opportunity be missed.

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