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PROFIT SHIFTING BEFORE AND AFTER THE TAX CUTS AND JOBS ACT

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In recent years, profit shifting by multinational companies (MNCs) has generated substantial revenue costs to the U.S. government. The Tax Cuts and Jobs Act (TCJA) changed U.S. international tax law in several important ways. This paper discusses the nature of these changes and their possible effects on profit shifting. The paper also evaluates the effects of the global intangible low-taxed income (GILTI) tax on the location of taxable profits. Once company adjustment to the legislation is complete, estimates suggest that the GILTI tax will reduce the corporate profits of U.S. multinational affiliates in haven countries by about 12–16 percent, modestly increasing the tax base in both the United States and in higher-tax foreign countries. However, a per-country minimum tax would generate much larger increases in the U.S. tax base; a per-country tax at the same rate reduces haven profits by 23–31 percent, resulting in larger gains in U.S. tax revenue.

Keywords: international taxation, corporate taxation, tax avoidance, profit shifting, income shifting

JEL Codes: H25, H26, H73

I. INTRODUCTION

Public Law 115-97, typically referred to as the Tax Cuts and Jobs Act (TCJA), generated the most sweeping U.S. corporate tax policy changes since 1986. The statutory corporate tax rate was lowered from 35 to 21 percent, and three new international provisions (GILTI [a Global Intangible Low-Taxed Income tax], FDII [a Foreign-Derived Intangible Income deduction], and BEAT [a Base Erosion and Anti-Abuse Tax]), largely untested elsewhere, changed the tax treatment of multinational company (MNC) income. The United States also changed the label of its tax system from "worldwide" to "territorial" by exempting foreign income from taxation.

Still, in international tax, labels can be deceiving.[1] Most countries lie on a spectrum between a "pure worldwide" system and a "pure territorial" system, and the United States is no exception, then or now. Under the prior (purportedly worldwide) system,

[1] For a longer discussion of the distinction between label and reality in international tax, see Clausing (2016a).

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tax on foreign income was not levied until repatriation and very little tax was collected on foreign income. Under the current (purportedly territorial) system, some tax on foreign income is collected currently through a global minimum tax.[2] In some respects, the present system has more worldwide reach than the prior system.[3]

The sweeping nature of these corporate tax provisions makes forecasting their effects difficult. The U.S. Joint Committee on Taxation (JCT) estimated that the rate cut would dramatically reduce U.S. government revenues, even after base-broadening provisions were accounted for, by over $650 billion in the coming decade. International provisions also lost revenue, but much more modestly ($14 billion over 10 years), because some provisions raise revenue (GILTI tax and BEAT) while others lose revenue (territoriality and FDII deduction).[4] Taking the committee's estimates at face value, they imply that the international provisions, on net, do not improve upon the status quo in terms of reducing the substantial revenue costs of profit shifting. Estimates in Clausing (2016c, 2020b) indicate that revenue costs from profit shifting may exceed $100 billion per year by the time of the legislation; these estimates are broadly consistent with findings of other authors as well as JCT estimates of the cost of deferral.[5]

The following analysis begins by considering the revenue costs of profit shifting, focusing primarily on the activities of U.S. MNCs as those are the companies most affected by the tax law change. Then, I consider the impact of the provisions of the TCJA on profit shifting incentives. While the direction of the impact of each provision is clear, some provisions are difficult to model precisely. In my empirical analysis, I focus on the effects of the global minimum tax, analyzing its impact on the corporate tax base in the United States and abroad. I estimate that this provision will reduce profit shifting, lowering the U.S. affiliate corporate tax base in haven countries by about 12–16 percent in the steady-state equilibrium. Foreign corporate tax revenues in non-haven countries are also buttressed by the global nature of the minimum tax, which lowers the tax sensitivity of some U.S. MNCs to foreign tax rates.

However, the global nature of the minimum tax, in comparison to a per-country minimum tax, substantially reduces its impact. Indeed, the global nature of the minimum tax makes the United States the *least* desirable place to book income for many MNCs, because if they do not have sufficient foreign tax credits to offset minimum tax due, even high-taxed foreign income is preferable to U.S. income when foreign tax credits shield haven income from the GILTI tax. In contrast, under a per-country minimum tax, reductions in haven tax bases would be about twice as large and U.S. revenue gains from the minimum tax would be more than two and a half times higher.

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[2] Subpart F income triggers current taxation under both prior and present law.

[3] Particular company circumstances will determine whether the new system has a greater or lesser worldwide reach than the prior system.

[4] There is also a one-time deemed repatriation tax on prior earnings. This represents a tax break in comparison to prior law, but it raises over $300 billion in the 10-year window. Because it is a one-time tax on earnings that have already occurred, it is ignored in the subsequent analysis.

[5] See, for example, Guvenen et al. (2018), OECD (2015), Zucman (2015), and Joint Committee on Taxation (2014). This literature, and related controversies about the scale of profit shifting, are discussed in more detail below. Note that revenue lost due to profit shifting will be mechanically lower at lower corporate tax rates.

In the short run, the effects of the TCJA on profit shifting will be smaller as companies will gradually adjust to the diminished incentive to shift profits abroad. Indeed, as of the end of 2019, there is no evidence of a reduction in profit shifting or a change in the location of U.S. MNC profits. This may be due to the conflicting nature of the international provisions of the TCJA, which together have ambiguous effects on the incentive to shift profits offshore. In addition, the details of implementing regulations are likely to be important. With time, the complete effects will become clearer. Yet, even as these effects are sorted out, other countries' policies, and MNCs, will not stand still. Neither profit shifting, nor corporate tax competition, will end with the TCJA.[6]

II. BACKGROUND

There are many prior studies on profit shifting, and good reviews are provided in Clausing (2016c), Dowd, Landefeld, and Moore (2017), and OECD (2015), with more recent studies discussed below.[7] One grave difficulty in prior work is data quality. Some of the best databases in terms of company coverage and detail are financial reporting databases, such as Orbis, yet these are missing tax haven observations, substantially reducing their usefulness.[8] As subsequent analysis shows, the vast majority of profit shifting occurs with respect to haven countries so studies that rely on Orbis data are likely providing substantial underestimates of the profit shifting problem.

Tax data are often not available to researchers outside the tax authorities, although that is slowly changing in the United States and elsewhere. In this analysis, I rely on several sources of data: survey data from the U.S. Bureau of Economic Analysis (BEA), BEA direct investment income data from the Balance of Payments, and new Country-by-Country tax reports from the Internal Revenue Service (IRS), a full set of which was just released in December 2019.

While there have been some concerns voiced in Blouin and Robinson (2020) about double counting in these data, the BEA series used below do not have any double-counting problems. In addition, a comparison of the total profits in the 2017 Country-by-Country data with those reported from other sources indicates that double counting is unlikely to be a substantial problem in these data, especially since I omit the "stateless income" observation due to current ambiguities in interpretation.[9] These data sources are discussed in detail in Appendix A.

Studies of the TCJA are relatively speculative at this point, and to my knowledge, there is not yet substantial work estimating how the legislation will affect profit

[6] While the competitive response of other countries is beyond the scope of this paper, it is a useful area for future research. Early work on this topic includes Beer, Klemm, and Matheson (2018).

[7] The OECD overview of this issue is particularly comprehensive.

[8] This problem is documented by Tørsløv, Wier, and Zucman (2018) and discussed by OECD (2015), Dowd, Landefeld, and Moore (2017), and Clausing (2016c, 2020b). For example, Tørsløv, Wier, and Zucman (2018) report that $55.3 billion in consolidated profits are reported by Apple in 2016 in the Orbis data set, yet only $2 billion show up in the subsidiary data in Orbis. Similarly large amounts of haven income are missing for other MNCs.

[9] Appendix A discusses the strengths and weaknesses of all data series in detail. See footnote 59 for a full discussion of the possibility of double counting in these data.

shifting.[10] Horst (2019) has done a preliminary analysis of admittedly incomplete company financial reporting in the wake of the law; he finds that the international provisions are likely to raise less revenue than JCT estimated, and the Congressional Budget Office (2020) has recently revised downward their revenue estimates from the international provisions.

III. PROFIT SHIFTING BEFORE PUBLIC LAW 115-97 (TCJA)

Under prior law, the United States had a purportedly worldwide tax system. Foreign income was taxable in the United States, with tax credits provided for foreign taxes paid to avoid double taxation. There were two elements of this worldwide system that substantially reduced any U.S. tax on foreign income. First, tax was not due until repatriation, so companies could accumulate earnings in low-tax jurisdictions offshore without owing U.S. tax. Second, cross-crediting was allowed, such that excess credits from high-tax countries could be used to offset U.S. tax due on income from low-tax countries. As time went by, lower corporate tax rates abroad left fewer U.S. MNCs with excess credits. Companies were often reluctant to repatriate foreign income, due to the nagging suspicion that a better deal was to be had in the future in comparison with paying the full U.S. rate. This suspicion was only fueled by a temporary tax holiday on repatriated earnings (with a repatriation tax rate of 5.25 percent), offered as part of the American Jobs Creation Act of 2004. In the end, the U.S. government raised very little, if any, revenue by taxing foreign income, because foreign tax credits offset income that would have otherwise been taxable (e.g., royalty income) and companies were reluctant to repatriate without holidays or offsetting tax credits.[11]

Under this system, deferral provided a large incentive to shift profits to havens offshore, where they would be taxed more lightly and might ultimately receive favorable treatment upon repatriation. And regulatory changes in the late 1990s added fuel to the fire by facilitating the creation of stateless income, whereby companies created complicated chains of ownership in order to further reduce their worldwide tax obligations, often resulting in income that completely avoided tax altogether.[12]

Companies respond to tax differences across countries through both real and financial channels. Real responses include moving investment or job creation toward countries with lower tax rates, whereas financial responses entail accounting and legal decisions

[10] Dharmapala (2018) has considered the likely consequence of the law on the tax burdens on foreign income, finding that the legislation is likely to raise the tax burden on foreign income for many U.S. MNCs. There are good general analyses of the legislation provided by Slemrod (2018), Auerbach (2018), Beyer et al. (2019), and Hanlon, Hoopes, and Slemrod (2019), but these papers do not address international provisions. There have also been some early analyses of possible effects on other countries (Spengel et al., 2018; Beer, Klemm, and Matheson, 2018). Both of these studies focus primarily on the U.S. statutory rate change, rather than the international provisions of the law.

[11] See, for example, Altshuler and Grubert (2001).

[12] A detailed treatment of this problem is provided in Kleinbard (2011). See also Mintz and Weichenrieder (2010).

that shift profit away from where it is truly "earned" toward locations where it will be more lightly taxed. Because of profit shifting, we expect to observe higher levels of profit, conditional on any given level of real economic activity, in lower tax rate countries. In this paper, I assume that profit shifting does not affect the total amount of global profit and I assume that real decisions are not driven by profit shifting motives.[13]

There is no shortage of casual evidence indicating that profit shifting is a big problem. For example, on the eve of the TCJA, U.S. MNCs were widely reported to have trillions of dollars in foreign earnings sitting offshore as a result of prior profit shifting activity. For 2017, Country-by-Country data on accumulated earnings offshore show $4.2 trillion in offshore accumulated earnings, $3 trillion of which was in havens.[14] Indeed, in haven countries, such as Bermuda and the Caymans, the annual profits booked by U.S. multinational affiliates are an order of magnitude larger than the entire size of the local economy.[15] And companies were vocal about the difficulty of having their foreign profits "locked out" by fear of repatriation tax, even though those funds were easily borrowed against, creating the equivalent of a tax-free repatriation, and were also frequently already invested in U.S. capital markets, providing a source of capital for the larger U.S. economy.[16]

In prior work, I estimate that profit shifting likely cost the U.S. government at least $77 billion per year by 2012; other non-haven countries also face large revenue costs.[17] Below, I update these estimates to 2017, making several changes in methodology. First, I focus solely on the behavior of U.S.-based multinational firms. This decision focuses on the subset of companies that are most affected by the change in U.S. tax law, and it also focuses on the companies for which we have the best data.

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[13] Both of these assumptions will lower estimates of the tax base loss due to profit shifting in non-haven countries, relative to plausible scenarios where these assumptions do not hold. For example, if worldwide profit is lower due to the costs of profit shifting (e.g., paying accountants), then a world without profit shifting would entail more total profit. Also, if real activity in tax havens would be lower absent profit shifting incentives, then in a counterfactual without profit shifting, haven countries would have an even smaller share of global profit relative to non-havens. In reality, the line between real and financial responsiveness is not always clear, but substantial evidence suggests that the responsiveness of reported profits to tax rate differences across countries is far larger than the responsiveness of real economic activity such as employment.

[14] $2.8 trillion is located in just nine havens (Bermuda, the Caymans, Ireland, Jersey, Luxembourg, Netherlands, Puerto Rico, Singapore, and Switzerland). The $3 trillion figure includes a broader group of smaller havens beyond those above, including Isle of Man, Gibraltar, Macau, St. Lucia, St. Kitts and Nevis, Barbados, and Mauritius.

[15] See Gravelle (2015).

[16] A tax-free repatriation results when a company borrows (perhaps using foreign cash as collateral) to finance domestic investments. The interest paid is deductible, but the interest earned on the cash abroad is taxable. These two tax events cancel if the interest rate is the same, and it is as if the company had access to its offshore earnings.

[17] 2012 was the most recent year with available data when that study was completed. This estimate represents the revenue cost of profit shifting relative to a counterfactual world without profit shifting. Of course, most legislative "solutions" to profit shifting will not completely eliminate profit shifting. This estimate should not be viewed as revenue that would result from any particular legislative proposal.

Second, I provide a more sophisticated measure of the share of the profits shifted abroad that truly "belong" to the U.S. tax base, rather than to foreign tax bases, in the absence of profit shifting. In prior work, I assumed that the share of profits that belong in the United States (relative to foreign tax bases) was the same as the ratio of foreign affiliate transactions with U.S. parents relative to transactions with affiliates in other countries. At the time, I thought affiliate transactions were a useful proxy for the ability to shift profits across bases. However, these transactions themselves are likely distorted by profit shifting incentives.

Therefore, in more recent work, I instead assign shifted profits to countries' tax bases based on a formula that reflects where real economic activities are occurring; this should be a more accurate estimate of where profits would be in a counterfactual world without profit shifting. Recent data suggest that about two-thirds of U.S. MNC economic activity is in the United States, so I assign two-thirds of the excess profits in tax havens to the U.S. tax base.[18]

Third, I have corrected a prior faulty adjustment that I made to the BEA direct investment income series that may have inadvertently inflated the size of the estimates. The prior adjustment was intended to simply include the full amount of U.S. company income, but I have learned that the adjustment risked inflating income in the presence of chains of ownership. However, omitting the adjustment, as I do now, underestimates the magnitude of foreign income.[19]

Fourth, I now follow three methods of estimation to show readers a range of possible estimates that rely on different estimation techniques. The first technique simply assigns all havens (defined as countries with effective tax rates below 10 percent) the world average profit/employment ratio and then reallocates the excess haven income to non-haven countries.[20]

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[18] I use several different data series to assess the U.S. share of real activity, but they all generate a similar two-thirds share. For the 2017 U.S. Country-by-Country data, the average of the U.S. share of employees, assets, and sales is 68.8 percent, excluding stateless income from the denominator. In the U.S. BEA data for 2017, the average of employee and sales shares is 67.1 percent and the average (also) including employment compensation is 70.9 percent.

[19] In particular, I had adjusted the data in order to include all income from U.S. MNCs, not just the U.S.-owned portion of that income reported in the balance of payments data. I used data provided by the U.S. BEA on the foreign ownership share to make this adjustment. However, the adjustment risks inadvertently overestimating the total amount of profits in each country in the presence of chains of ownership, so now I use the data without this adjustment. Therefore, I only capture the U.S.-owned share of MNC profit. (For example, if foreign investors own 25 percent of a U.S. company, I would only include 75 percent of the company's profit in my sample.) Thus, while the prior method introduced a source of overestimation, this method introduces a source of underestimation.

[20] For example, using the Country-by-Country full sample series, profit per worker in Singapore is $337,000. If there were instead $50,500 of profit per worker (the average across all foreign countries), that would imply about $46 billion less earned in Singapore. These ratios are calculated separately for each data set. As Table 1 indicates, the estimates are very dependent on the data set used. The Country-by-Country data show the most haven countries, estimating $7 billion of excess income in Isle of Man, $12 billion in Jersey, and $31 billion in Puerto Rico (in the full data set) in 2017. For the direct investment income series, all excess income comes from five locations; for the adjusted income series, only four havens are involved. Tørsløv, Zucman, and Wier (2018) also focus on profit to wage ratios in their assessment of profit shifting magnitudes.

The second and third techniques use regression analysis to estimate the tax sensitivity of foreign profits, controlling for the scale of foreign operations (measured by assets, employment, and employee compensation) and country-specific factors (captured by country-specific fixed effects).[21] The tax sensitivity is then removed, resulting in less profit in low-tax countries. Any reduction in profits in low-tax countries is limited to the existing level of profit, so *overall* profits are unchanged. Reduced profits are then reallocated to higher-tax countries by formula.

Using the same method, I also allow for non-linear elasticities, which are important to include, as persuasively argued by Dowd, Landefeld, and Moore (2017). Non-linear elasticities fit the data better than linear elasticities, helping to explain the disproportionate clustering of profit in the lowest tax rate countries.[22]

Fifth, I now consider all methods of estimation using four distinct data series. These data series have strengths and weaknesses that are thoroughly discussed in Appendix A. The results are shown in Table 1; this table shows the revenue loss to both the United States *and* other non-haven countries due to U.S. MNC profit shifting. As argued above, two-thirds of these totals should be assigned to the U.S. tax base, reflecting the U.S. share of U.S. MNC economic activity. In addition, Table 1 does not include the revenue costs associated with the profit shifting of foreign MNCs. As I argue in Clausing (2020b), those two considerations together imply that the U.S. revenue cost is about 95 percent of the numbers reported in Table 1 if foreign MNCs engage in a similar degree of profit shifting.[23]

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[21] I use a benchmark elasticity of 3, slightly below that of my preferred specification (3.2), which regresses the natural log of direct investment income on the effective tax rate, log employment, log employee compensation, and log assets, controlling for country-specific fixed effects. This elasticity is a simple benchmark and readers can scale the estimate up and down accordingly with simple multiplication. Any elasticity from a pooled or cross-sectional analysis of any one of these four data sets would be higher. Due to the limited time dimension of the Country-by-Country data set, a fixed effects specification is not possible using those data. In all cases, I limit the sample to jurisdictions with tax rates between 0 percent and 50 percent. Otherwise, losses and small idiosyncratic instances can generate outlier tax rates. For the elasticity methods, in line with prior work, I assume a 30 percent effective U.S. tax rate, allowing some base narrowing relative to the statutory rate. Using the statutory rate instead would increase the estimates for two reasons. There would be a higher tax rate on the reassigned income, and the calculated amount of excess profits abroad would also change due to the larger discrepancy between the U.S. and the foreign rate.

[22] Dowd, Landefeld, and Moore (2017) argue that tax responsiveness is non-linear, such that elasticities are highest with respect to haven countries. They employ U.S. tax data, excellent data for studying this question, finding large elasticities with respect to haven data. Indeed, in my estimations, non-linear elasticities typically fit the data better than linear ones. This makes intuitive sense. When shifting profits, it is most advantageous to achieve the lowest tax rate possible. For the estimates of Table 1, I use synthetic non-linear elasticities that are similar to those reported in Dowd, Landefeld, and Moore (2017) but substantially smaller than those estimated by these data series.

[23] The profit of foreign MNCs operating in the United States relative to U.S. MNCs operating abroad is 39 percent in 2019, the most recent year available. (A similar fraction is found in 2017 and 2018.) This uses the "income without current cost adjustment" series from https://www.bea.gov/international/di1usdbal for U.S. MNC income abroad and a parallel series from https://www.bea.gov/international/di1fdibal for foreign MNC income. The fact that both numbers are after tax suggests using a somewhat higher ratio. I estimate the before-tax ratio at 42 percent. Thus, if we scale x by $x \times (2/3) \times 1.42$, the total number would be about 95 percent of the original number.

Table 1

Indicators of the Magnitude of Revenue Loss from U.S. MNC Profit Shifting in 2017 (in Billions of US$)

	BEA Direct Investment Income Series (Balance of Payments Data; Adjusted Pre-Tax)	BEA Adjusted Income Series (Removes Equity Income from Income, Using BEA Survey Data)	IRS Full Country-by-Country Sample (without Stateless Income)	IRS Average of Full and Positive Profit Country-by-Country Sample (without Stateless Income)
Assign all havens[1] the world average profit/employee ratio	79	61	96	118
Remove tax elasticity; reallocate profits, linear elasticity	75	67	96	122
Remove tax elasticity; reallocate profits, non-linear elasticity	**89**	70	**109**	**141**

Notes: The table shows the full revenue costs due to the profit shifting of U.S. MNCs to both the United States and other foreign (non-haven) countries, assuming shifted profit would have been taxed at pre-TCJA tax rates of either the U.S. statutory rate (Row 1) or 30 percent (Rows 2 and 3). Of course, foreign tax rates differ. For comparison, U.S. corporate tax revenues for fiscal year 2017 were about $297 billion, using CBO data.
[1] Havens are defined as those countries with effective tax rates less than 10 percent.

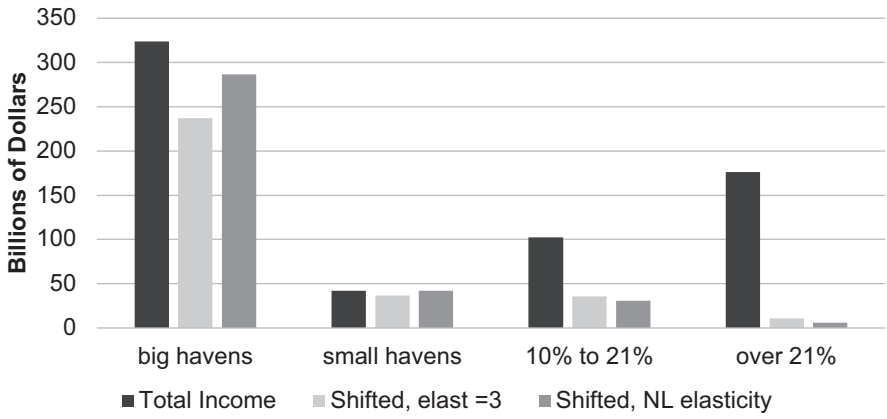
Readers will immediately notice the wide range of estimates, depending on method and data series employed. Given the opaque nature of international tax avoidance and the wide variety of data sources with important differences in coverage and definitions, this large range is not surprising. Interested readers should consult Appendix A for a full discussion of the relative merits of these data series. My preferred estimates are those bolded in Table 1, which employ non-linear elasticities and the three data series indicated.

Regardless of the estimation approach or data set, it is clear that the profit shifting problem is quite large. A salient feature of these data is the bunching of profits, and thus of estimated profit shifting, in the lowest tax countries. Figure 1 shows shifted profits relative to total profits using both linear and non-linear elasticities using the IRS Country-by-Country data, which allow for a richer country breakdown due to the inclusion of more than twice as many countries in the analysis.[24] It is apparent that havens account for the vast majority of all profit shifting activity; that pattern persists for all data series and methods.

[24] Online Appendix B shows the result for the direct investment earnings series. The pattern is similar.

Figure 1

Distribution of Profits and Shifted Profits, IRS Country-by-Country Series



Notes: Big havens (in importance) are Bermuda, the Caymans, Ireland, Luxembourg, Puerto Rico, Netherlands, Singapore, and Switzerland. Small havens are all other countries with effective tax rates less than 10 percent.

IV. PUBLIC LAW 115-97 (TCJA) AND PROFIT SHIFTING

Within the new U.S. tax legislation, there are several important tax law changes that affect profit shifting incentives for MNCs. Table 2 summarizes the main provisions and their likely effects on profit shifting. The statutory rate cut is dramatic, 14 percentage points, although the effective rate cut is lower than that (10 percentage points) due to several base-broadening provisions in the legislation. JCT calculates that the other business tax provisions reduce the 10-year revenue cost of the corporate tax cut from about $1.3 trillion to about $650 billion.[25] Thus, the overall incentive to earn income in the United States has improved but not by the full 14 percentage points implied by the statutory rate decrease. In addition, the incentive to locate debt-financed investments in the United States has decreased, as noted by Gravelle and Marples (2018). Further, almost all profit shifting activity occurs with respect to countries with tax rates below the global minimum tax rate (up to 13.125 percent), so it seems unlikely that the new 21 percent corporate tax rate will encourage substantial inbound profit shifting.

The TCJA was widely advertised as a move toward a territorial tax system, and indeed foreign income is typically exempt from taxation, although there are important exceptions. Still, there is no tax triggered by repatriation, so whatever tax benefits are

[25] The domestic production deduction is repealed, net operating losses are treated less favorably, research expenditures are amortized beginning in 2022, and debt-financed investments are treated somewhat less favorably. Arguably, the interest limitations of the business tax provisions will also affect profit shifting, but these effects are not analyzed in this paper.

Table 2
Profit Shifting Incentives before and after the TCJA

	Before TCJA	After TCJA	Effect on Profit Shifting	10-Year JCT Revenue Score, $b
Statutory corporate rate	35	21	Reduced incentive to shift out of U.S. base	–1,349 (net: –654)
Tax treatment of foreign income	No tax until repatriation, then 35 less foreign tax credit[1]	Not taxable unless subject to minimum tax	Increased incentive to shift out of U.S. base	–224
GILTI tax	NA	0 until threshold, then 10.5; up to 13.125 if blended with income from higher-tax countries[2]	Reduced incentive to shift profits to havens; increased incentive to earn in other countries	112
FDII deduction	NA	Tax preference for profits from export sales above threshold	Likely to have negligible effect	–64
BEAT	NA	An add-on minimum tax when payments to foreign related parties exceed threshold	Reduced incentive to shift income out of U.S. base	150

Note: The revenue numbers are from the December 18, 2017 tables provided by the JCT (JCX-67-17).
[1] Lighter rates may apply, or be anticipated, due to holidays, anticipated holidays, or expectation of future favorable treatment upon transition to a new tax system. Permanently reinvested earnings are not taxed in the United States but might be expected to encounter deemed repatriation tax upon transition to a territorial system.
[2] These rates are scheduled to increase after 2025, to 13.125 percent and 16.4 percent. This analysis ignores interaction effects between the provisions.

associated with moving income offshore occur without fear of later U.S. tax. Holding other provisions constant, this provision will increase the incentive to shift income out of the U.S. tax base. Under prior tax law, tax upon repatriation resulted in a "lock-out" effect and this lock-out effect may have provided a speed limit on the booking of income offshore.[26] Removing the possibility of tax upon repatriation should heighten tax responsiveness, as some evidence from the United Kingdom suggests.[27]

Despite the shift to a territorial system under the TCJA, there are significant provisions under the law that may actually result in a *higher* net burden on foreign income for U.S. MNCs. While there is no tax due upon repatriation, there is a minimum tax due *currently* on GILTI. While the first 10 percent return on assets is exempt from the GILTI tax (providing a perverse incentive to increase real investments abroad), profits beyond that amount are taxable at half the U.S. tax rate.[28] Under plausible circumstances, this will actually raise the burden on foreign profits relative to prior law, as argued by Dharmapala (2018) and others.

But will the GILTI provision cause profit to be shifted into the United States? In practice, that outcome is questionable. Because the TCJA uses a *global* minimum tax, tax obligations in higher-tax countries can offset the minimum tax due on haven income. Therefore, companies can blend their haven and non-haven foreign income, reducing or perhaps eliminating payments of U.S. minimum tax and achieving a lower tax rate than the U.S. rate.[29]

While the global minimum tax discourages profit shifting to havens, it is effectively an "America last" tax policy from the perspective of revenue because both low-tax and high-tax foreign countries are tax preferred relative to the United States if a company is in deficit credit position with respect to GILTI. (That distinction will be discussed shortly.) Indeed, the GILTI tax acts as a support for the tax revenues of our trading partners, reducing tax competition pressures.[30]

Under the TCJA, the corporate rate may be somewhat lower if the firm has above-normal profits generated by exports since the new FDII deduction provides a deduction for export profits that exceed a threshold return on assets. However, this provision is likely to be challenged by trading partners because it may not be compatible with

[26] As recognized since Hartman (1985), repatriation taxes need not create lock-out effects for mature firms if future tax treatment is both certain and unchanging. Because the repatriation tax is unavoidable, companies will have the incentive to invest in whatever location generates the greatest profits, knowing that when the income is moved, it will incur a one-time repatriation tax regardless. However, in practice, certainty was lacking, causing companies to stockpile earnings offshore in the hope of more favorable future tax treatment. Indeed, more favorable tax treatment eventually arrived with the TCJA, and it temporarily arrived earlier with a holiday in 2005. While waiting for favorable treatment, the lock-out effect likely dampens the overall enthusiasm for shifting profit offshore because shareholders are prevented from accessing the profits unless they pay the tax due upon repatriation.

[27] See, for example, Liu (2020) and Liu, Schmidt-Eisenlohr, and Guo (2018). See Hasegawa (2018) for an analysis of the Japanese experience.

[28] The GILTI tax rate starts at 10.5 percent but is scheduled to increase to 13.125 percent in 2026.

[29] Only 80 percent of the foreign taxes paid are creditable, so there will still be some incentive to seek out lower tax locations.

[30] That feature may speak in its favor, as argued by Morse (2018), because it helps combat a race to the bottom in corporate tax competition.

World Trade Organization (WTO) obligations.[31] In addition, because it only applies to export sales, companies will still have an incentive to locate profits offshore if some of the resulting profits are generated by sales to the U.S. market. In addition, there is a perverse incentive to avoid locating real assets in the United States as U.S. assets reduce the amount of FDII that is subject to the deduction, which is only allowed on profits above a normal return on assets.

Finally, there is the BEAT. This provision is an add-on minimum tax that applies whenever deductible payments to foreign related entities exceed a threshold. There are many curious interactions between the BEAT and other provisions that can also raise the tax burden associated with the minimum tax. While the BEAT is complicated and difficult to model, it is a feature of the tax landscape that should *lower* the incentive to shift profits to low-tax locations for both U.S. and foreign MNCs. Indeed, one salutary feature of the tax is that it treats both U.S. and foreign taxpayers the same.

Out of necessity, there are also other effects of changes in the law that are not considered here.[32] Once the dust clears, the JCT forecasts that the international provisions of the new law will lose $14 billion in revenue over 10 years, setting aside the one-time deemed repatriation tax revenue. (This one-time provision is a tax break relative to prior law, but it raises revenue in the 10-year JCT estimate.) These modest revenue losses are on top of the $654 billion lost due to the corporate tax cuts.[33] That said, revenue estimates are the best guess of JCT experts at the time of the legislation; subsequent changes in tax planning, implementing regulations, and the laws of other countries can impact these numbers. Both Horst (2019) and the Congressional Budget Office (2020) suggest that revenue from the international provisions may fall short of expectations. In addition, journalists have pointed to ways in which business-favored implementing regulations may have lessened revenues from the provisions, although financial reporting data are insufficiently detailed to clarify these magnitudes.[34]

Figure 2 shows the pattern of U.S. MNC direct investment income before and after the TCJA; it indicates little change in the share of income in tax havens in the wake of the law. While the counterfactual is difficult to establish, the share of income in havens in 2019 (61 percent of after-tax income, 1.5 percent of GDP) is identical to the five-year average prior to the law (2013–2017).

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[31] Sanchirico (2018) discusses the FDII deduction; there is some ambiguity regarding the WTO issue, but the FDII deduction is unlikely to be an effective way to encourage U.S. IP activity or buttress the tax base.

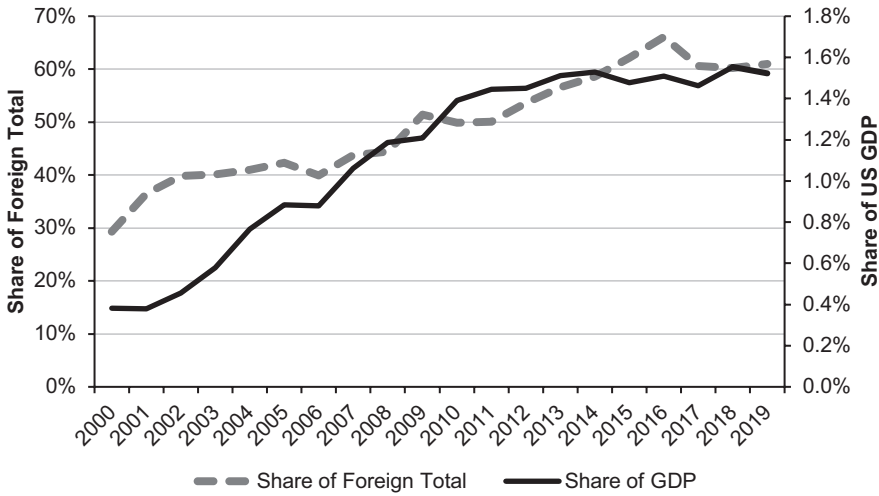
[32] Every journey begins with a single step. Unfortunately, this exercise would become extremely complicated and would require a great deal of company-specific information if all of the effects of the legislation were considered together. Among other things, I do not consider the effects of the limitations on interest deductibility, expense allocation (which may cause companies with higher foreign tax rates to pay the GILTI tax), the effects on accounting measures of tax liabilities (both short and long run), interactions between the GILTI tax and the BEAT (and those between other provisions), effects on the "real" shifting of jobs or assets (that may be encouraged by elements of the GILTI tax and the FDII deduction), and the likely tax policy responses of other countries.

[33] There are also about $265 billion in net tax cuts for pass-through businesses; these are ignored in the present analysis.

[34] See Drucker and Tankersley (2019) and Eavis (2019).

Figure 2

Share of U.S. MNC Income in Seven Big Havens, 2000–2019



Notes: Data are from the U.S. BEA. The big seven havens are Bermuda, the Caymans, Ireland, Luxembourg, Netherlands, Singapore, and Switzerland.

V. PROFIT SHIFTING AFTER THE TCJA

The following analysis will focus on the effects of the global minimum tax, the GILTI tax, on profit shifting. In order to consider this question, several modeling assumptions are needed. First, I account for base-narrowing provisions that lower the marginal effective tax rate below the statutory rate. Given the base-broadening provisions of the TCJA, a smaller reduction in the effective rate is now justified. Following the assumptions of the Congressional Budget Office (2018), I will use a rate of 20 percent to capture the new marginal effective rate.[35]

Modeling the global minimum tax rate is difficult because it depends on the circumstances of individual companies, which are likely to vary widely across industries, and it depends on the mix of foreign affiliates' locations. For companies with deficit credits that do not have enough foreign tax credits to completely offset their GILTI tax, I model the GILTI tax as *raising* the tax rate on haven income from its current rate to something between 10.5 percent and 13.125 percent. Because foreign tax credits are only creditable at a rate of 80 percent, for a country with a tax rate of 0, the GILTI tax

[35] See the supplementary tables accompanying the CBO's April 2018 *The Budget and Economic Outlook: 2018 to 2028*, available here: https://www.cbo.gov/about/products/budget-economic-data#10. One could quibble with any choice of rate. The 20 percent rate is the CBO rate for 2018–2021 on all corporate capital, weighted across investment and industry types.

rate will be 10.5 percent, but for a country with a tax rate between 0 and 13.125, the GILTI tax rate will slowly increase from 10.5 percent to 13.125.[36]

For companies with deficit credits, the GILTI tax also affects the incentive to earn income in higher-tax countries. Because foreign tax credits can be used to offset minimum tax due on low-tax country income, I model the change in tax rate as a decrease to 10.5 percent plus 20 percent of the foreign rate.[37] For companies with deficit credits, marginal dollars earned abroad in higher-tax countries help offset the GILTI tax, effectively lowering its overall burden.

For companies with excess foreign tax credits, where their foreign operations already generate sufficient foreign tax credits to eliminate any GILTI tax due, tax incentives post-TCJA are similar to those under pre-TCJA law, only without the fear of tax due upon repatriation. The marginal consequence of earning another dollar in a haven is the haven rate, because existing foreign tax credits will eliminate any GILTI tax due. The marginal consequence of earning an additional dollar in a higher-tax country will be the higher tax rate, because there are not additional benefits associated with such income in the presence of excess foreign tax credits.

One essential question is how many companies (and how much income) will face the incentives of deficit credit firms and how many companies (and how much income) will face the incentives of excess credit firms. In 2017, for U.S. MNCs as a group, the effective tax rate on their foreign income (in total) is very similar to the GILTI tax cutoff.[38] Thus, one plausible assumption is that about half of income is held by companies in excess credit position and half of income is held by companies in deficit credit position, with respect to the global minimum tax. That is the assumption I will adopt initially, but I provide a range of estimates that depend on different values of that parameter in Online Appendix C. Of course, as company behavior changes in response to the new tax law, these parameters will likely evolve.

A. Estimates

Before the tax law changes, the difference in effective tax rates between the United States and major trading partners often varied from nearly –30 percent to + 30 percent. At one extreme lie countries, such as Bermuda, with an effective tax rate approaching zero; at the other end, there are countries where the effective tax rate for U.S. foreign affiliates was about 60 percent.

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[36] For the purpose of the present analysis, I ignore the zero rate on the first 10 percent return on assets; Sullivan (2018) indicates that, at present, this is likely to be a small benefit for most major MNCs. If companies offshore additional real investments in response to the exclusion from tax of the first 10 percent return on assets, this exclusion could become more important over time.

[37] For example, a dollar of income earned in a 25 percent tax rate country (e.g., the Republic of Korea) will increase the parent company GILTI tax obligations by 10.5 cents but will also reduce prior GILTI tax burdens by 20 cents, or 80 percent of the 25 cent Korean tax burden. So, the net tax consequence of the additional income earned abroad is 25 cents paid to the Korean government, plus 10.5 cents of additional GILTI tax, minus 20 cents of reduced GILTI tax burden on haven income, totaling 15.5 cents, which equals 10.5 percent plus 20 percent of the 25 percent Korean tax.

[38] Using Table 1B of the Country-by-Country reporting data, the amount of tax paid relative to the total profit earned by U.S. multinational groups (ignoring groups with losses) is 11.5 percent.

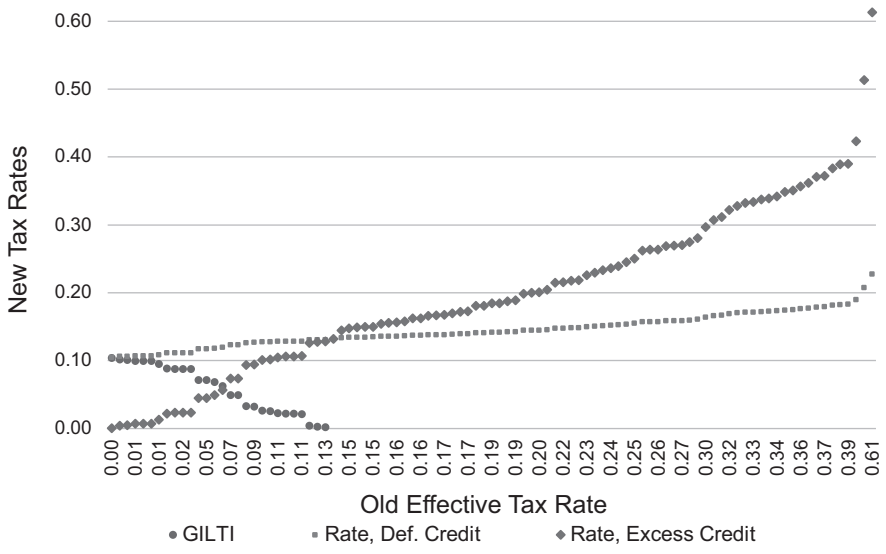
After the TCJA, for those companies with operations in both high- and low-tax countries that have insufficient tax credits to cover the GILTI tax, these comparisons look very different. The U.S. tax rate declined and foreign tax rates are now highly compressed for deficit credit companies, from a 10.5 percent rate (on above normal returns) for zero tax rate countries to a 10.5 + (0.2 × T_f) rate, where T_f is the foreign tax rate, for high-tax countries, because those streams of income can be blended with GILTI. For any foreign country with a tax rate less than 52.5 percent, this rate is lower than the new U.S. statutory rate.

For excess credit companies, aside from the lower U.S. rate and the absence of tax upon repatriation, little is changed. There are still substantial incentives to put profits in havens (which offer very low marginal rates) and to avoid putting profit in high-tax locations, where it will face the full marginal foreign rate.

Figure 3 shows these tax treatments for excess credit and deficit credit companies. The old effective tax rates (marked by the blue diamonds) are also the rates faced by companies with excess credits; they range from about 0 percent to about 60 percent. As Figure 3 indicates, the new GILTI-inclusive rates for deficit credit companies (marked by the green squares) are far more compressed than those rates, ranging from 10.5 percent to about 22 percent. The GILTI tax's contribution to the total tax rate for low-tax countries is also indicated in the figure, marked by red circles.[39]

Figure 3

Effective Tax Rates for GILTI, before and after the TCJA



Note: Author calculations based on IRS Country-by-Country data in 2017 (positive profit sample).

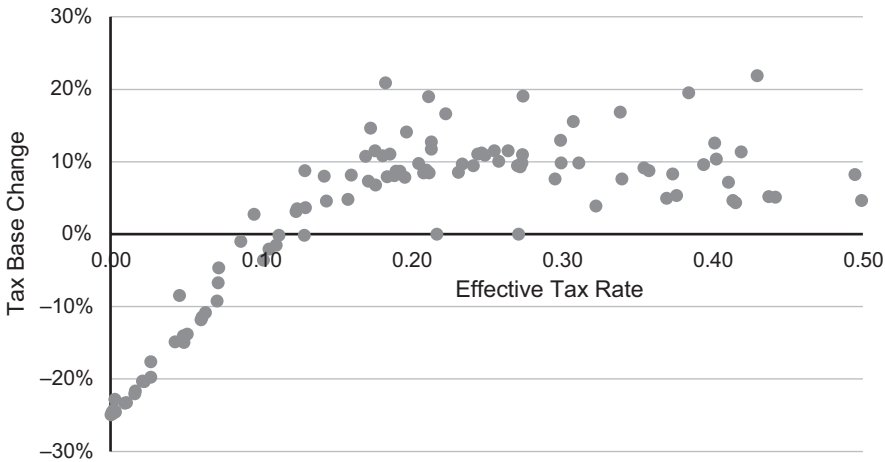
[39] Again, this figure simplifies the picture, as it ignores many details, including the impact of the BEAT, interactions between the BEAT and the GILTI tax, the issue of losses, and other considerations.

In modeling the likely effects of this legislation on profit shifting, one should distinguish between the steady-state response to changes in tax incentives and the immediate response. Immediately after the legislation goes into effect, it is unlikely that companies will reorient their profit shifting in response to compressed tax rates. It is true that the gap between Bermuda (a zero tax rate country) and Angola (a country where U.S. MNCs paid an effective tax rate of 60 percent in 2017) is much smaller than it once was for some firms, but if one has profit booked in Bermuda instead of Angola, it hardly pays to rearrange things so that the income is now booked in Angola. A lower tax rate is still lower. The companies that are currently engaged in profit shifting have already set up vast accounting and legal operations surrounding minimizing global tax burdens; given the magnitudes involved, it is unlikely that these operations will cease if they can only save 10 percent instead of 30 percent.[40] Indeed, Figure 2 shows little diminution of profit shifting in the first two years since the legislation came into effect.

In the steady state, once companies and their tax planners have adjusted to the new tax environment, profit shifting is less lucrative than it was previously and that should have material effects on the extent of profit shifting. Figure 4 shows the estimated change in profits for each country due to the global minimum tax, ordered by its 2017 effective tax rate, using the Country-by-Country data; BEA data are shown in Online

Figure 4

Tax Base Change for U.S. Affiliates Due to GILTI (by Effective Tax Rate in 2017, Using Non-Linear Elasticities and Country-by-Country Data)



[40] Indeed, there is substantial evidence that suggests that large companies do the vast majority of all profit shifting, perhaps due to the large fixed costs associated with setting up the associated legal and accounting expertise. See, for example, Wier and Reynolds (2018).

Appendix D. The analysis assumes that half of the foreign income of U.S. MNCs is held by companies in deficit credit position and half is held by those in excess credit position, with respect to the GILTI tax; results varying this assumption are shown in Online Appendix C.[41] For the companies in deficit credit position, the effective tax rate abroad changes as indicated by Figure 3 (from the blue diamonds to the green squares); for companies in excess credit position, the effective tax rate abroad is unchanged. Changes in the tax rate are multiplied by the elasticity of the tax base with respect to the tax rate, using the non-linear elasticities.

The total tax base change across all foreign countries is then allocated across countries according to a formula, as in Section III, that reflects an equal weighting of the countries' share of employment by U.S. affiliates (number of employees) and the countries' share of sales of U.S. affiliates, relative to the foreign total (which itself is one-third of the world total). Alternative formulas can be easily considered and do not significantly change the main conclusions for either the United States or major groups of countries.

As summarized in Table 3, these calculations imply that the GILTI tax will reduce profits booked in havens by 12–16 percent, increasing profits booked in other high-tax countries by 8–9 percent and increasing the U.S. tax base by $17–$30 billion, resulting in about $3–$6 billion in tax revenue each year at new tax rates.

Note that these numbers are *not* revenue estimates. Instead, these numbers show an estimate of how behavioral responses by companies may change the location of U.S. affiliate profit shifting in the steady state, after the adjustment to the new tax law is

Table 3

Changes in Corporate Tax Base Due to the GILTI Tax

	BEA DII Series		IRS CbC Series	
	Tax Base Change, Billions	Tax Base Change, %	Tax Base Change, Billions	Tax Base Change, %
Min tax countries	–35.9	–11.7	–55.1	–15.5
Others, non-havens	18.3	8.1	21.6	9.1
Rich	13.0	8.0	12.3	8.6
Non-rich	5.4	8.1	9.4	9.8
United States	16.7	—	29.9	—
U.S. revenue ($b)	3.3	—	6.0	—

Notes: This analysis considers the steady-state effect on tax bases; revenue is calculated at a 20 percent marginal effective tax rate. Data are from 2017. Rich economies are those above $16,000 GDP per capita.

[41] Online Appendix C provides a range of estimates for situations where between 10 percent and 90 percent of income is held by companies that have deficit credits with respect to the global GILTI tax.

complete. Estimates are based on 2017 data because that is the most recent year with broadly available data; hence, this table shows the change to tax bases in 2017 if the TCJA had already been fully in effect (and adjusted to) in 2017.

VI. ALTERNATIVE POLICIES

There are both incremental and wholesale tax policy changes that would affect the profit shifting landscape more dramatically. Examples of incremental changes include a higher minimum tax rate and an institution of a per-country version of the minimum tax. Either of these changes would raise more U.S. revenue and further reduce profit shifting incentives. Table 4 shows estimates for a per-country version of the minimum tax; this change increases the U.S. revenue gain from the minimum tax substantially, by at least 250 percent.

This change is primarily due to a larger reduction in profit shifting when tax responsiveness is not reduced by the "global averaging" feature of the GILTI tax; under a per-country tax, no companies would be able to avoid the GILTI tax through cross-crediting with higher tax income. For foreign countries that are not minimum tax countries, the positive effects of less profit shifting to havens are roughly the same size as the negative effects of less blunting of their higher tax rates via global averaging, so on net, they have similar tax base effects as under the global minimum tax.

A higher minimum tax rate would also further level the playing field between the United States and lower-tax countries. Indeed, if the GILTI tax rate were harmonized

Table 4

Effects of a Global Minimum versus a Per-Country Tax

	GILTI Tax	Per-Country Minimum Tax
BEA DII series		
Minimum tax country U.S. affiliate tax base (%)	–11.7	–23.0
Other foreign country U.S. affiliate tax base (%)	8.1	7.9
U.S. corporate tax base ($b)	16.7	49.7
Implied additional U.S. revenue ($b)	3.3	9.9
IRS CbC series		
Minimum tax country U.S. affiliate tax base (%)	–15.5	–30.6
Other foreign country U.S. affiliate tax base (%)	9.1	9.3
U.S. corporate tax base ($b)	29.9	77.0
Implied additional U.S. revenue ($b)	6.0	15.4

Source: Author calculations based on BEA and IRS data and assumptions in text.

with the regular U.S. rate, there would no longer be an incentive to shift profit offshore, nor would there be need for the BEAT or the FDII deduction (for U.S. MNCs). There would remain an incentive to avoid paying tax in countries with rates higher than that of the United States. Online Appendix E considers possible revenue gains from higher per-country minimum taxes between 21 percent and 35 percent. U.S. revenue gains are substantial, from about $40 billion per year under a 21 percent minimum tax to more than twice that under a 35 percent minimum tax.[42]

While such changes would reduce profit shifting, there are also concerns. Harmonizing rates on domestic and foreign income basically transforms our tax system into a true worldwide system, with more bite than our prior purportedly worldwide system because foreign income is taxed currently. It is possible that a lower corporate tax rate (than 35 percent) would make such a change more palatable. Still, the very label "territorial" was fetishized in the debate surrounding the TCJA. Indeed, moving to a territorial system was deemed more competitive, even though it arguably raised tax burdens on foreign income for many U.S. MNCs relative to prior law.

Yet there is a legitimate argument that a worldwide system harms resident companies in competition with non-resident companies in third markets, potentially distorting ownership patterns of investment in a way that reduces efficiency. The tax disadvantage faced by resident companies could also encourage corporate inversions, although there are useful anti-inversion legislative remedies that could be pursued.[43] The adoption of similar policies in other countries could also help. For example, Clausing, Saez, and Zucman (2020) suggest a proposal for a coordinated minimum tax that would substantially reduce such competitiveness concerns.

Still, measures to stem profit shifting often illustrate a clear trade-off between corporate tax base protection and this notion of competitiveness on which I have written extensively elsewhere.[44] But, while Section III shows substantial evidence that profit shifting has large consequences in terms of corporate tax base erosion, there is not much evidence regarding competitiveness problems facing U.S. MNCs, even before the TCJA. U.S. MNCs were the envy of the world in terms of their outsized impact on world markets, their historically large corporate profits, and their savvy tax-planning acumen. U.S. corporate tax receipts were 50 percent lower (as a share of GDP) than those of peer nations, and U.S. corporate profits were about 50 percent higher as a share of GDP (before or after tax) in recent years, relative to prior decades. U.S. companies also held a disproportionate presence on Forbes lists of the world's top 2000 companies.[45]

[42] Per-country minimum taxes in this range were all proposed during the 2020 primary election. Online Appendix E reports estimates using all four data series. Here, I use the IRS country-by-country series. The Tax Policy Center estimates Biden's 21 percent minimum tax with similar increases in revenue.

[43] See Clausing (2014), Shay (2014), and Kleinbard (2014).

[44] See Clausing (2016a, 2018, 2020c).

[45] For more on the U.S. position in Forbes lists, see Clausing (2018). For more historical and comparative data on U.S. corporate tax revenues and U.S. corporate profits, see Clausing (2016b).

From this starting point, the TCJA provided net corporate tax cuts of over $650 billion over a decade. While some provisions may make a dent in the profit shifting problem, the international provisions of the legislation are conflicting and, taken as a whole, will not raise substantial U.S. revenue. Much more could be done to protect the corporate tax base from profit shifting.[46]

Others have argued that profit shifting is not all bad, since it reduces the bite of the corporate tax, which some view as an undesirable tax. Yet, as I have argued elsewhere, the corporate tax has an important role to play in our broader tax system for efficiency, equity, and administration reasons.[47] It is also important to remember that the corporate tax is one of our only tools for taxing capital income, since the vast majority (about 70 percent) of U.S. equity income goes untaxed by the U.S. government at the individual level.[48]

In addition, there are clever ways to reduce profit shifting without creating fears regarding competitiveness. Beyond coordinating with other countries on minimum tax adoption, a formulary apportionment system, or a destination-based corporate tax, could mark a near end to profit shifting without creating competitiveness concerns, allowing for a better environment for a robust corporate tax. Such policy options are discussed elsewhere, but they should be carefully considered in future reform efforts.[49] Finally, it is important to remember that competitiveness entails far more than the corporate tax system; investments in human capital, infrastructure, and sound, stable governance institutions all play essential roles in creating a strong business climate.

VII. CONCLUSION

The TCJA contains several features that change the profit shifting landscape. The lower statutory rate, the GILTI tax, and the BEAT work to reduce profit shifting offshore, while the territorial treatment of (some) foreign income and the absence of tax upon repatriation increase profit shifting incentives. Due to the complexity of the tax

[46] There are daunting political obstacles, however. The U.S. corporate community has complained about the BEAT and the GILTI tax, both tougher provisions than expected. Thus, it is likely that there will be pressure to weaken these provisions, and some journalists have noted that implementing regulations may have already had that effect. See Drucker and Tankersley (2019).

[47] For a complete defense of the role of the corporate tax, see Clausing (2016b). From an equity perspective, it is more progressive than any tax in our system aside from the estate tax, which itself is small and shrinking under the TCJA. For more on the incidence of the corporate tax, see Clausing (2013) and Clausing (2020a). From an efficiency perspective, in the presence of expensing and large subsidies for debt-financed investments, the corporate tax largely falls on the "excess profits" of companies, not on the normal return to capital. Taxing excess profits is efficient, and recent research also suggests that taxing the normal return to capital is no more inefficient than labor taxation. See, for example, Farhi et al. (2012), Conesa, Kitao, and Krueger (2009), Straub and Werning (2020), and Piketty and Saez (2012, 2013).

[48] See Burman, Clausing, and Austin (2017). The corporate tax also has an important role to play as a backstop to the individual tax system, because without a corporate tax, the corporate form generates sheltering opportunities.

[49] See, for example, Avi-Yonah and Clausing (2008, 2017) and Clausing (2020c).

law changes and the interactions among them, as well as the moving target of foreign tax policies and MNC tax planning, precise conclusions about the impact of the TCJA are difficult. Many of the international features of the law are unchartered territory, and there are myriad questions for future research.[50]

This analysis has considered profit shifting incentives before and after the TCJA. Before the TCJA, deferral of U.S. tax on foreign income provided large incentives to minimize global tax burdens by shifting income to tax havens. U.S. MNCs, aided by a permissive regulatory environment, became renowned profit shifters. In 2017, a majority of the direct investment earnings of U.S. MNCs were booked in just seven havens and tax havens accounted for the vast majority of all U.S. multinational profit shifting activity. By 2017, profit shifting by U.S. MNCs reduced corporate tax revenues by large magnitudes, regardless of the data set or method employed; my preferred estimates suggest a revenue loss of approximately $100 billion per year.[51]

While this is a large number, the counterfactual is a world without profit shifting, and most legislative changes are likely to stop far short of such a world.[52] The TCJA is no exception; it is far from an end to profit shifting. However, there are still substantial changes in the tax landscape. In addition to the reduction in the U.S. statutory rate, the global minimum GILTI tax acts to substantially compress tax rate differences across countries for some companies. When companies do not have sufficient foreign tax credits to offset the tax due under the GILTI tax, the GILTI tax provision raises the marginal tax rate on non-exempt haven income to at least 10.5 percent (up to 13.125 percent) and it lowers the marginal tax rate on higher-tax foreign income substantially.[53] On the other hand, for companies with large amounts of foreign tax credits offsetting the GILTI tax, the marginal incentives to shift income across countries are largely unchanged, aside from the U.S. statutory tax rate reduction and the end of tax upon repatriation.

Overall, after adjustment to the GILTI tax is complete, estimates indicate a 12–16 percent reduction in the U.S. affiliate corporate tax base in tax havens, an 8–9 percent increase in the U.S. affiliate corporate tax base in foreign countries above the minimum tax threshold, and a $15–$30 billion increase in the U.S. corporate tax base each year.

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[50] It would be especially useful to study the consequences of the BEAT as well as the role of the TCJA in shaping international tax competition.

[51] Every data set comes with its own imperfections; I review the strengths and weaknesses of various data sets in Appendix A. All estimates are large, in the many tens of billions, but there is a wide range of possible estimates, depending on the preferred data set and estimation method.

[52] Some dramatic reforms, such as a pure worldwide system, formulary apportionment, and a destination-based cash flow tax, would come close to eliminating profit shifting, though of course they would not eliminate tax avoidance, as firms might then undertake other decisions, such as mergers or acquisitions or changes in ownership structure, to avoid tax. Still, not all decisions are equally tax sensitive. It is widely known in public finance that there is a hierarchy of behavioral response, such that financial decisions are far more sensitive to tax incentives than are real decisions. See, for example, Auerbach and Slemrod (1997) and Saez, Slemrod, and Giertz (2012).

[53] The first 10 percent return on assets is untaxed under the GILTI tax, so it faces the foreign tax rate with no residual U.S. taxation.

A per-country minimum tax would increase U.S. revenues and reduce profit shifting to tax havens far more substantially. On the other hand, although the U.S. statutory tax rate reduction is important for domestic firms, it is not a determinative force when it comes to profit shifting activity because the distribution of shifted profits is extremely concentrated in the lowest tax rate countries.

Many topics are on the agenda for future research, including understanding the effects of implementing regulations as well as studying the many other international tax effects of the TCJA. For example, the quasi-territorial nature of the tax system (with no tax due upon repatriation and tax-free treatment for some foreign income) may increase profit shifting incentives more than the BEAT decreases profit shifting incentives, possibly cutting into the modest beneficial effects on profit shifting that are discussed here. Still, both the GILTI tax and the BEAT should be applauded for reducing international tax competition pressures, relative to a hypothetical version of the TCJA without these provisions.

In the end, the TCJA certainly provides tax cuts; that much is certain. The net ongoing corporate business tax cuts total more than $650 billion over the coming decade.[54] In my opinion, revenue-neutral business tax reform, as previously suggested by both Democrats and Republicans, would have been a far better path forward.[55] In addition, the positive effects of these tax cuts on the larger economy were substantially oversold, though it will take time to establish their ultimate effect.[56] Beyond doubt, the TCJA has created many interesting questions for economic research.

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[54] As before, I am ignoring the one-time repatriation tax on previously earned income, which is a tax cut relative to prior law but raises revenue in the 10-year window.

[55] In recent years, both former Ways and Means Chair Dave Camp (a Republican) and the Obama Administration offered examples of such reforms.

[56] The Trump Administration made particularly far-fetched claims of $4,000–$9,000 average wage increases resulting from the corporate tax cuts, and officials also argued that companies would share their cash windfalls with workers. Early data on wage growth indicate no evidence of the windfall-sharing mechanism. Early evidence of increases in investment due to the TCJA is also disappointing, and most economists believe that wage growth numbers of these magnitudes are implausible. See Clausing (2020a) for a discussion of the early evidence on this question.

DISCLOSURE

The author has no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.

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APPENDIX A: DATA SOURCES FOR ESTIMATING THE SIZE OF PROFIT SHIFTING[57]

There is a large discrepancy in the literature on profit shifting between sources that rely on financial accounting databases (such as Orbis and Compustat) and sources that rely on macroeconomic statistics, tax data, or survey data on MNCs. Studies using the accounting databases find far smaller magnitudes of profit shifting and much lower elasticities than the other types of studies. Further, meta-analyses and literature surveys, such as Heckemeyer and Overesch (2017) and Dharmapala (2014), that disproportionately rely on financial accounting database studies also minimize the magnitude of the profit shifting problem.[58]

There are several simple explanations for these discrepancies. While financial accounting databases are understandably very attractive to researchers since they allow the use of company-specific information, they come with crucial drawbacks. First, accounting databases, such as Orbis and Compustat, do not show most profits in havens from big MNCs. Indeed, haven data can be nearly absent. However, even a cursory look at *any* other data source that shows the country distribution of profits, including the recently released Country-by-Country database, shows very large amounts of income booked in haven countries. If you are missing haven income, you are missing the vast majority of the problem.

Second, a small number of very large MNCs undertake the vast majority of all profit shifting, as shown by investigations by Wier and Reynolds (2018) and others. As Bilicka (2019) argues, there is reason to suspect that there are fixed costs associated with profit shifting. This implies that large companies will be more willing to invest in the legal and financial expertise required to shift profits. Yet studies that treat each company observation equally may miss the fact that the tail of the distribution behaves differently from the average observation.

Third, as Dowd, Landefeld and Moore (2017) have persuasively argued, tax responsiveness is likely to be non-linear, such that elasticities are highest with respect to haven countries. Dowd, Landefeld, and Moore (2017) employ U.S. tax data, perhaps the ideal data for studying this question, finding large elasticities with respect to haven data. Indeed, non-linear elasticities tend to fit the data better than linear ones. This makes intuitive sense. When shifting profits, surely it is best to aim for the lowest tax rate possible; shifting profits from a 30 percent country to a 20 percent country is less advantageous than moving profits toward havens with near-zero tax rates.

Due to the importance of tax havens, non-linear elasticities, and large, highly profitable companies, studies using accounting databases are likely to substantially underestimate the profit shifting problem. These studies are based on data that excludes from view almost all haven income, and studies also frequently treat companies similarly irrespective of size.

Recently, Blouin and Robinson (2020) suggest an additional reason for these differences in empirical magnitudes. In particular, they are concerned about flaws in researchers' interpretations of the data sources in the second sets of studies (using tax, survey, or macro data), due to the inadvertent inclusion of double-counted data or the misallocation of profits due to incorrect inferences about the location of profit in the presence of chains of ownership.

Double counting has long been recognized (by myself and others) as a problem in one BEA series on foreign income: the net income series now found in Table IID1 of the multinational operations dataset. Double counting is *not* a problem in two other BEA data series: the direct

[57] This appendix includes some information from Clausing (2020b).

[58] This effect can be seen very clearly in Table 4 of Heckemeyer and Overesch (2017). Elasticities are far smaller for studies that employ financial accounting database data, and such studies dominate these surveys.

investment income series, and the profit type return series. Nor is double counting a problem in macroeconomic data, and it is unlikely to be a significant problem in tax data (5471), once dividend income is excluded. Whether double counting is a problem in the U.S. Country-by-Country data is unclear, but if there is double counting, it does not appear to be a large problem.[59]

However, Blouin and Robinson (2020) argue that a simple adjustment of the BEA net income series is possible, and comparing that series to the other series illustrates that other series may be misattributing too much income to low-tax countries, a result that they attribute to misunderstandings surrounding the equity method of accounting.

Yet there are other possible explanations for the differences between the adjusted data series of Blouin and Robinson (2020) and other series. These include differences of coverage, definitional differences, book/tax differences, and the possibility that their adjusted series does not include all profit shifting.

In particular, the BEA researchers that work most closely with these data hold that the adjusted series determines where income is earned for accounting purposes but does not indicate where income is booked for tax purposes. In particular, when income is shifted *among* foreign countries, the adjusted series may put too much of the income where it was earned rather than where it was taxed.[60]

There are also potential problems due to the possibility of hybrid dividends that may appear as a deductible payment for the high-tax originating affiliate but equity income for the low-tax receiving affiliate. It is unclear how the survey data would treat hybrid dividends, but they may be included as equity earnings in the low-tax receiving affiliate. Sorting out where untaxed income should be located is also important.[61]

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[59] I omit stateless income from the analysis, which is a possible source of double-counted income. Revenue is defined to exclude intracompany dividends, implying that profit should also exclude that source of income. Still, the definition of profit may be unclear, and companies are free to supply data as they see fit. Yet, since the data are known to be used for transfer pricing risk assessment, it is unlikely that companies will have an incentive to overstate their income, especially in tax havens. Further, foreign totals are similar to those reported from other sources that are known to exclude double counting.

See Horst and Curatolo (2020) for more on the possibility of double counting in these data. Their analysis suggests a 14 percent discrepancy between Country-by-Country income totals (for both the United States and foreign countries) and totals in financial reports when stateless income is excluded. There are several possible reasons for discrepancies, including the larger company coverage of the Country-by-Country data, the fact that reporting and definitional differences exist between the series, and the possibility that the Country-by-Country totals are overstated due to confusion about form 8975 directions. In the last event, it is possible that U.S. income is overstated, which would not affect the current analysis, but it is also possible that some foreign lines may be mismeasured.

[60] When BEA economists corresponded with the authors and myself during the summer and fall of 2019, there remained disagreement regarding whether the Blouin and Robinson adjustment inadvertently eliminated some foreign-to-foreign shifting. The BEA economists maintain that they do eliminate some foreign-to-foreign shifting, and the data below also support that possibility. Still, it is possible that some of the disagreement is due to terminology. Blouin and Robinson's method will show us where income is earned from an accounting perspective. However, the costs of profit shifting are generated by deviations between where income is truly earned and where it is reported for tax purposes. As Bilicka (2019) and others have shown, there are often important differences between these concepts.

[61] As Dyreng, Hills, and Markle (2019) show, many foreign earnings go entirely untaxed by foreign jurisdictions; their preliminary work suggests that untaxed foreign earnings are both substantial and increasing, reaching $170 billion in 2017.

While it is certainly important to acknowledge the limits of some data series, the adjusted series suggested by Blouin and Robinson (2020) raises its own puzzles, as illustrated in Table A1. For example, the adjusted series generates negative profits in Bermuda in 2016 and 2017 and very small profits in other recent years, despite the fact that Country-by-Country data show $634 billion in accumulated earnings in Bermuda, tens of billions of which was earned in each of 2016 and 2017. In general, the adjusted series yields a smaller share of income in tax havens, compared with either the direct investment earnings series or the Country-by-Country data. Such puzzles are compatible with the view that the adjusted series excludes some foreign-to-foreign profit shifting.

Table A1

Foreign Profits, in Billions of US$, 2017

	Adjusted Method (BR)	BEA Balance of Payments Direct Investment Income		IRS Country-by-Country Data (Income Series Are before Tax)		
	Net Income + Foreign Tax-Equity Income	After Tax (Reported)	Before Tax (Calculated)[1]	Full Sample	Positive Profit	Accumulated Earnings
All countries[2]	571	471	575	638	874	4,241
Stateless (omitted from totals and subtotals)				204	215	691
Puerto Rico	—	—	—	34.3	35.2	114
Ireland	82.5	51.8	55.9	29.5	34.2	104
Luxembourg	6.5	36.8	38.7	24.9	60.4	357
Netherlands	58.7	76.1	81.1	40.0	70.0	462
Switzerland	37.7	30.5	34.3	49.4	59.2	375
Bermuda	–10.4	32.3	33.2	32.5	35.4	634
U.K. Caymans[3]	20.7	33.2	33.8	58.5	62.4	143
Singapore	35.3	24.5	27.5	54.6	56.8	175
Big haven total	231	285	305	324	414	2,364
Big haven share	40%	—	53%	51%	47%	56%

Notes: Big havens include only the specific havens listed above, although the Country-by-Country data reveal many other small havens. For example, in the 2017 data, Jersey emerges as a big haven with $461 billion in accumulated profits; however, Jersey is not included as a big haven in this table.

[1] This calculation adds back foreign taxes paid from the income statement to the direct investment earnings series. There may be imperfect country matching if direct investment income is distributed across countries differently from net income, but it gives plausible relative magnitudes, especially for the totals.

[2] This total excludes stateless income.

[3] BEA data list as "U.K. Caribbean Islands," but other sources list as the Caymans.

In 2017, the adjusted series produces similar foreign totals as the direct investment earnings series, once they are calculated on a before-tax basis. However, in earlier years, these series do not always align well. Online Appendix F reviews data for other years.

Further, important puzzles arise when trying to reconcile the adjusted method series with the large stocks of accumulated earnings reported by companies in the 2017 Country-by-Country data series. These puzzles are well illustrated in Table A2. Over the period 2008–2017, the adjusted series indicates a total of $51 billion booked in Bermuda, whereas direct investment earnings data indicate a total of $264 billion, a quantity more consistent with a stock of $634 billion in accumulated earnings.[62] Similar puzzles exist for several other haven countries.

A. The Four Data Series

Below, I discuss four data sources, describing their strengths and weaknesses. In my analysis, I use these four different series, and three different methods, to generate estimates of the scale of profit shifting. The four data series used in this analysis correspond to those in Table A1: the BEA adjusted income series; the BEA direct investment income series; the full Country-by-Country data set; and the "positive profit" Country-by-Country data set, where companies reporting losses are excluded.

1. Adjusted Income Series. This series adjusts the net income data from the BEA surveys to add back foreign taxes and to subtract equity income. **Positives:** The series relies on survey data from the U.S. BEA; a long time series of cross-country data are available. This series, by excluding all equity income, excludes any potential double counting in the data. Since MNCs are required by law to complete the survey, data should be complete. Since the data are not used for financial reporting or tax purposes, there is no apparent incentive to distort the data. **Negatives:** While this series may be accurate for reporting where income is located for some accounting purposes, it is likely to miss some foreign-to-foreign profit shifting, thus allocating too little income to tax havens. Hybrid dividends may lead to the mischaracterization of some equity income. Untaxed foreign earnings may not be accounted for in the proper jurisdiction or may be invisible. The series generates important discrepancies between annual income reported in haven jurisdictions and the far larger stock of reported accumulated earnings in such jurisdictions.
2. Direct Investment Income Series. **Positives:** These data have been reported by the U.S. BEA for a long time series of cross-country observations. This series is also free of any double-counting concerns. Data coverage should be very good. **Negatives:** Income is counted as originating in the "last" country before the flow to the United States, which may be different from the country where income was earned for accounting purposes or reported for tax purposes, although there is no reason to suspect that the tax rates of reporting countries will be systematically lower than those where tax was paid. Data are after tax, so they are not directly comparable to other before-tax series and matching with foreign tax data from BEA surveys will be imperfect. Only the U.S.-owned portion of direct investment income is included, so this omits any foreign-owned direct investment income from U.S. MNCs. This will lead to an underestimate of the amount of profit shifting.

[62] None of these numbers have been adjusted for growth in invested earnings.

Table A2

Earnings over 2008–2017 and Accumulated Earnings in 2017
(in Billions of US$)

	BEA Data: Adjusted Method (2008–2017)	BEA Data: Direct Investment Income[1] (2008–2017)	IRS Country-by-Country Data: Accumulated Earnings (2017)
All foreign	3,873	4,486	4,241
Seven havens	1,243	2,052	2,250
Bermuda	51.1	264	634
Seven haven share (%)	32.1	45.8	53.1

Notes: The seven havens include Bermuda, the Caymans, Ireland, Luxembourg, Netherlands, Singapore, and Switzerland. For the BEA data, 2009 and 2014 are excluded since some haven countries are missing data for those years; those columns report only the eight years with complete data.
[1] Data are again calculated to be before tax to ease comparison to the adjusted series.

3. Country-by-Country Income Series (Full Sample). **Positives:** This series was designed to reveal transfer pricing risk assessment issues, and it contains most of the relevant measures for such assessment, including sales, employment, and assets, as well as tax paid, tax accrued, before-tax profit, and accumulated earnings. Country coverage is excellent, with little missing data and more than twice as many countries without missing data. Some important havens are visible that are missing from the BEA data set. Given the purpose of these data, companies should have no incentive to overreport income in haven countries. **Negatives:** Complete data are only available for one year (2017) as of this writing. One line of the data, stateless income, is difficult to interpret; some of the stateless income may be double-counted versions of income on other lines of the report. Thus, stateless income should be excluded for now. Mergers or acquisitions may result in confused reporting for some companies. There may be ambiguity regarding how profit is defined, which could lead to mismeasurement.[63] The data are new and there remain concerns that companies may not be certain how to best complete these forms.
4. Country-by-Country Income Series (Positive Profit Sample). This series has the same positives and negatives as the full sample. There is one additional issue, discussed immediately below.

[63] Revenue is defined to exclude intracompany dividends, implying that profit should also exclude that source of income. Still, the definition of profit may have originally been unclear, and in December 2019, the OECD issued updated guidelines clarifying that intracompany dividends should not be included in profit. Since the data are known to be used for transfer pricing risk assessment, it is unlikely that companies will have an incentive to overstate their income, especially in tax havens. Foreign totals are similar to those reported from other sources that are known to exclude double counting. See footnote 59 for more on this issue.

In the case of the first three data sources, there is also an issue concerning the aggregation of data from many companies, which combines companies with losses and those with profits. This can lead to an overestimate of the effective tax rate since taxes are paid only by profitable companies (typically), whereas the income in the denominator will include both profits and losses.

If all companies toggle back and forth between losses and profits nearly randomly, this issue is less of a concern, since effective tax rates may capture the medium-run tax burden faced by such companies over time. However, if some companies are persistently profitable and others persistently show losses, using aggregate data will bias estimates of effective tax rates upward and bias estimates of profit downward, lowering the estimates of profit shifting.

In practice, we know that companies differ in their time path of losses and profits, so focusing (in part) on those companies with profits makes sense when such data are available. However, how best to weigh these two series will depend on further empirical investigation regarding the persistence of profits and losses for U.S. MNCs. For now, I also analyze the positive profit sample, reporting results that average those findings with those for the full sample.

No data set is perfect, but we can learn about plausible magnitudes by comparing estimates across data sets. On balance, the above considerations lead me to suspect that the adjusted income data series, while providing a lower bound, will underestimate the scale of profit shifting by omitting some foreign-to-foreign shifting. Since not all haven income is allocated to the United States in the counterfactual without profit shifting, foreign-to-foreign profit shifting is important, even if one is only interested in revenue consequences for the United States.

The direct investment income series may also be low, since we are only capturing the U.S.-owned share of U.S. MNC foreign income. There are also some measurement issues, although it is hard to discern the direction of bias from such issues.

The full sample of Country-by-Country data could include some double-counted income if the stateless income line is included, so I exclude it in all analyses for now. Merger activity or other measurement issues may also be important and could distort total income numbers. As Table A1 indicates, however, in 2017, total income from this series ($638 billion) is similar to that of the other two series above that we know have no double counting and may, in fact, have sources of underestimation ($571 billion and $575 billion). Total income is *far* lower in these series than in the BEA series that includes double counting, the net income series, which shows $1.4 trillion in profit in all foreign countries in 2017. Thus, I suspect that the overall magnitude of the Country-by-Country data series is reasonable. Of course, the positive profit total is higher ($874 billion), but unlike the other series, that series excludes companies with losses.

For these reasons, my preferred estimates are those that employ either the Country-by-Country series or the direct investment income series.

B. Other Studies and Data Sources

The estimates of Table 1 in the paper are compatible with the large magnitudes of profit shifting suggested by other recent research using aggregate data. None of those studies use data that include double counting. Guvenen et al. (2018) use macroeconomic data, together with U.S. BEA data on direct investment earnings and find that earnings are misattributed across countries due to profit shifting. In 2012, this implies that the U.S. tax base should be about $280 billion larger, with correspondingly smaller tax bases in many haven countries. Zucman (2014, 2015) also suggests large U.S. revenue losses due to profit shifting. Tørsløv, Wier, and Zucman (2018) use macroeconomic data on foreign affiliate statistics, estimating that about 40 percent of mul-

tinational profits are shifted to tax havens each year and that this profit shifting has a substantial impact on macroeconomic statistics.

Bilicka (2019) has a particularly illuminating study that relies on U.K. confidential corporate tax return data. Using these data, she finds that foreign multinationals underreport their U.K. profits by about 50 percent and that eliminating differences in reported taxable profits would lead to revenue gains of 62 percent in 2014. While these estimates are large, they are also conservative since her matching method requires her to exclude the largest MNCs from the analysis.

Bilicka's work also indicates that using accounting data underestimates the size of the profit shifting problem; companies report zero taxable profits in many instances where they report positive accounting profits. The study suggests an additional reason why firm level data does not find large effects of profit shifting: the importance of zero taxable profits in the data. This finding supports the importance of the fixed costs associated with profit shifting; companies may not respond smoothly to variations in tax rate differences.

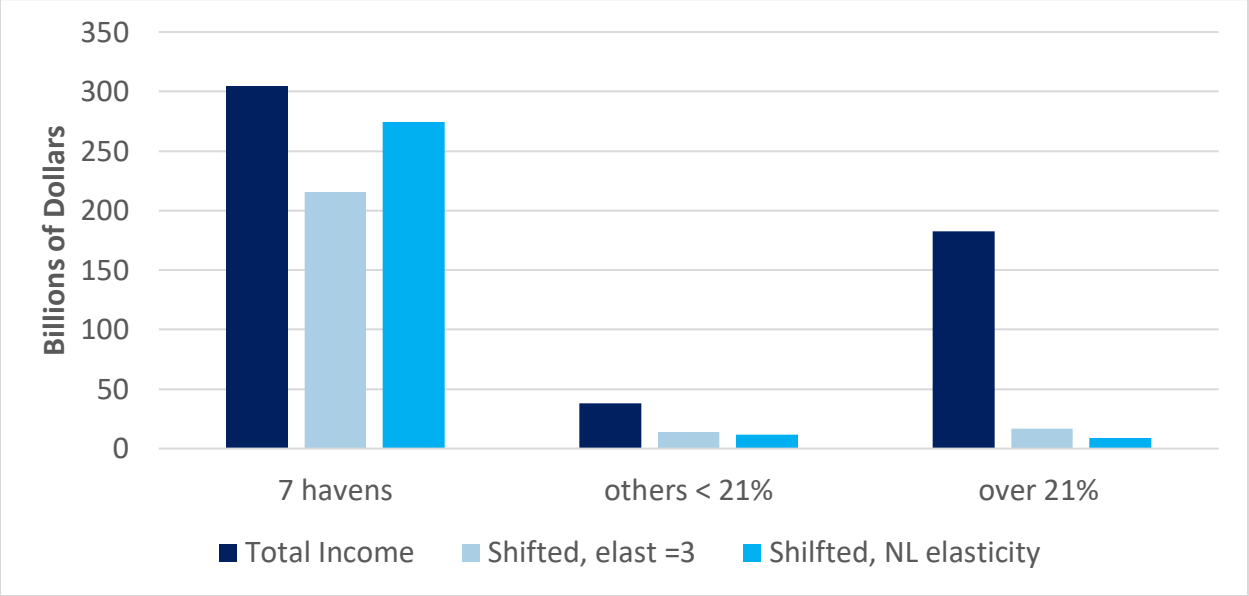
That insight is compatible with the non-linear elasticities emphasized in Dowd, Landefeld, and Moore (2017) as well as the above estimates of profit shifting. The vast majority of profit shifting appears to be destined for a small handful of tax havens. There is relatively less tax responsiveness in the data among higher tax rate countries.

This large scale of profit shifting is also compatible with the large estimates of the revenue loss due to deferral under the prior U.S. tax system (though those are distinct concepts); the large estimates of revenue loss due to base erosion found by the OECD (2015); and the large scale of the profit shifting problem noted by IMF researchers, including Crivelli, Keen, and de Mooij (2016), who find particularly large revenue losses for developing countries (as a share of GDP).

Appendixes B–F are located on the author's webpage and at the following SSRN link: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3274827.

Appendix B

Figure B1:
Distribution of Profits and Shifted Profits, BEA Direct Investment Income Series



Note: The seven havens are Bermuda, Caymans, Ireland, Luxembourg, Netherlands, Singapore, and Switzerland.

Appendix C

Below are estimates considering the effect of the GILTI global minimum tax, depending on the fraction of foreign income held by companies with deficit credits with respect to the tax.

Table C1: Changes in Corporate Tax Base Due to GILTI Global Minimum Tax

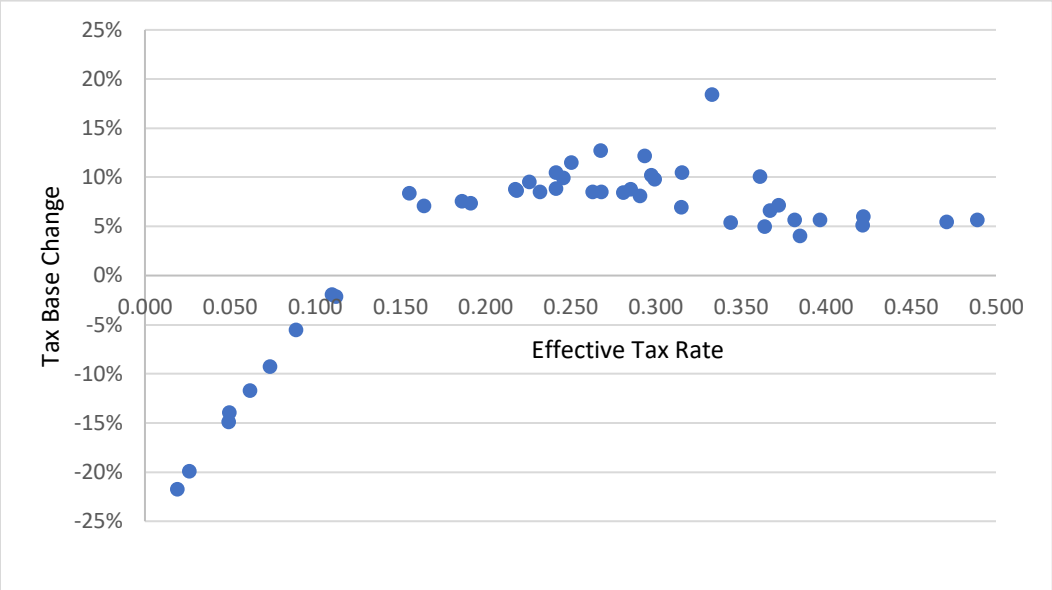
	BEA DII Series		**IRS CbC Series**	
	Tax Base Change, billions	Tax Base Change, percent	Tax Base Change, billions	Tax Base Change, percent
Baseline: 50% of Income Held by Deficit Credit Companies				
Min Tax Countries	-35.9	-11.7%	-55.1	-15.5%
Others, Non-Havens	18.3	8.1%	21.6	9.1%
Of which: Rich	13.0	8.0%	12.3	8.6%
Non-Rich	5.4	8.1%	9.4	9.8%
U.S.	16.7		29.9	
U.S. Revenue ($b)	3.3		6.0	
Alternate: 10% of Income Held by Deficit Credit Companies				
Min Tax Countries	-7.2	-2.3%	-11.0	-3.1%
Others, Non-Havens	3.6	1.6%	4.3	1.8%
Of which: Rich	2.6	1.6%	2.5	1.7%
Non-Rich	1.1	1.6%	1.9	2.0%
U.S.	3.3		6.0	
U.S. Revenue ($b)	0.7		1.2	
Alternate: 90% of Income Held by Deficit Credit Companies				
Min Tax Countries	-64.7	-21.1%	-99.2	-27.9%
Others, Non-Havens	33.0	14.5%	39.0	16.3%
Of which: Rich	23.3	14.5%	22.1	15.4%
Non-Rich	9.7	14.7%	16.9	17.7%
U.S.	30.0		53.7	
U.S. Revenue ($b)	6.0		10.7	

Note: This analysis considers the steady-state effect on tax bases; revenue is calculated at a 20% marginal effective tax rate. Data are from 2017. Rich economies are those above $16,000 GDP per-capita.

Appendix D

Figure D1: Tax Base Change for U.S. Affiliates due to Global Minimum Tax
(ordered by Effective Tax Rate in 2017, using non-linear elasticities)

BEA Direct Investment Income Data, 2017



Appendix E

Table E1 shows simple mechanical estimates of the revenue gain associated with higher per-country minimum taxes for the four data series. The method behind this table is simple. For each country with an effective tax rate below the minimum tax rate, the difference between the minimum tax rate and the country's effective tax rate is multiplied by the profit in that country. Two-thirds of the resulting revenue is allocated to the United States, reflecting the fact that US multinational companies undertake about two-thirds of their economic activity in the United States.

The remaining revenue ends up in other non-haven countries, due to reduced profit shifting under the minimum tax. Due to a reduced incentive to shift profits, the pattern of taxable profits across countries is likely to change, more closely reflecting the underlying location of economic activity. Thus, havens will lose tax base and non-havens will gain tax base. Thus, over time, the U.S. minimum tax revenue will partially show up as increased domestic corporate tax base (rather than minimum tax revenue), due to adjustments in the distribution of taxable profits.

Table E1: US Revenue from a Per-Country Minimum Tax in 2017

	Direct Investment Income Series (balance of payments data; adjusted to be pre-tax)	Subtracted Income Series (removes equity income from income, using BEA survey data)	Full Country-by-Country Sample (without stateless income)	Average of Full and Positive Profit Country-by-Country Sample (without stateless income)
21 percent	$30b	$24b	$41b	$53b
28 percent	$49b	$43b	$64b	$82b
35 percent	$71b	$66b	$89b	$113b

Appendix F: Comparing Data Series on Foreign Profits in Recent Years

As noted in Appendix A, in 2017, the adjusted series produces similar foreign totals as the direct investment earnings series, once they are calculated on a before-tax basis. However, in earlier years, these series do not always align well. 2014 numbers are similar, but in 2015 and 2016, the adjusted series produces smaller totals, as shown in Table F1. IRS data, from both the country by country data set (form 8975, only available in 2017 on a complete basis), and from the form 5471 CFC reports (available in even years), produce larger totals as well as larger shares of income in havens. In the country by country data, many more havens are visible, including some that appear to have large magnitudes of profits. In the 5471 data, dividend income has been removed from the totals, to remove double-counting in those data.

Table F1: Foreign Profits, in millions, 2014-2017

	BEA Adjusted Income Data	BEA Direct Invest. Income	IRS 8975 Country by Country (full)	IRS 8975 Country by Country (Positive profits)	IRS 5471 CFC Data (w/o dividend income)	IRS 5471 CFC Data (w/o dividends; positive profits)
2017						
All countries	571,007	574,958	638,467	873,621		
Big 7 Share	40%	53%	45%	43%		
All Haven Share			57%	55%		
2016						
All countries	420,565	514,483			705,591	855,976
Big 7 Share	41%	58%			66%	61%
2015						
All countries	428,446	524,755				
Big 7 Share	40%	54%				
2014						
All countries	580,597	590,286			647,557	789,633
Big 7 Share	34%[1]	48%			57%	53%

Note: All data are defined or calculated to be before-tax. All complete available years are shown. Havens are defined either be the big seven havens (Ireland, Luxembourg, Bermuda, Caymans, the Netherlands, Singapore, and Switzerland) or to include those havens plus all countries with effective tax rates below ten percent (in the country by country data). The IRS country by country data reveal many other important havens. In these data, I omit stateless income from all calculations. The BEA adjusted income adds back foreign taxes and subtracts equity income.

[1] Data are missing for Bermuda for this year, which lowers the haven share.