



# International Tax Competition and Coordination with a Global Minimum Tax

October 2022

Michael P. Devereux

Oxford University Centre for Business Taxation

---

Working paper | 2022-25

This working paper is authored or co-authored by Saïd Business School faculty. The paper is circulated for discussion purposes only, contents should be considered preliminary and are not to be quoted or reproduced without the author's permission.

# International Tax Competition and Coordination with a Global Minimum Tax<sup>1</sup>

Michael P. Devereux<sup>2</sup>

*Oxford University Centre for Business Taxation, Saïd Business School, Oxford*

October 2022

## **Abstract**

This paper investigates the incentives for countries to implement and maintain the global minimum tax introduced by the G20/OECD's Inclusive Framework 2021 agreement: Pillar 2. It argues that the agreement has sufficient elements to create incentives for large headquarters countries to implement it. Conditional on them doing so, there is an incentive for host countries to follow suit. The agreement would put a significant floor on tax competition. However, there are caveats to this argument in terms of complexity and the incentive to maintain some provisions that are likely to raise little revenue.

---

<sup>1</sup> I thank many people for helpful discussions in preparing this paper, especially Mick Keen, Vicki Perry, Martin Simmler, John Vella and Heydon Wardell-Burrus, and also for generous comments on an earlier draft from Michelle Hanlon, Jim Hines, Laura Kawano, and an anonymous reviewer. All errors are my own.

<sup>2</sup> [michael.devereux@sbs.ox.ac.uk](mailto:michael.devereux@sbs.ox.ac.uk).

## 1. Introduction

In 2021, nearly 140 countries agreed to unprecedented major reforms of the international tax system (OECD, 2021a, b). There are two elements of the reforms. Pillar 1 seeks to assign some taxing rights to the market country, where goods and services are sold.<sup>3</sup> The second element, Pillar 2, seeks to introduce a coordinated minimum effective tax rate of 15% across the world. Both represent fundamental reforms to international taxation. While there are many aspects of the reform worth analysis, this paper focuses on two related questions about Pillar 2: why so many countries made the collective decision to agree a minimum effective tax rate, and whether the agreement is likely to be implemented and survive in the longer run to become a central feature of a stable international tax system. There are huge disparities between the countries who were part of the agreement. Is it plausible that they all see a benefit in a minimum effective tax rate? What were the incentives of the different countries, and how was the agreement eventually structured to reach such an agreement?<sup>4</sup>

These questions raise basic issues of the benefits and costs of competition and coordination in international taxation. Competition is not a necessary feature of international tax. However, the competitive pressures to reduce tax rates are much more powerful for origin-based taxes on corporate profit than for other taxes. For example, there is very little pressure for a country to reduce VAT rates to match lower rates in other countries. The reason is clear. VAT is levied in the country of the sale – the destination country. Businesses cannot easily move the place of sale to reduce their tax liability, so governments do not need to reduce their VAT rates to attract business. By contrast, an origin-based tax must always trade off the welfare benefits of higher revenue with the welfare costs of creating a greater

---

<sup>3</sup> For an analysis of Pillar 1 and digital services taxes, see Hines (2022).

<sup>4</sup> See OECD (2021c) and OECD (2022) for details of the current agreement. The “Model Rules” were published in December 2021, after the agreement had been signed, and contained a major concession to low tax rate countries in the form of the Qualified Domestic Minimum Top-up Tax (QDMTT), discussed further below. It is therefore unclear exactly what countries believed they were agreeing to in July and October 2021.

disincentive to invest in that location. An agreement to set a minimum effective rate on an origin basis is therefore inherently potentially unstable; a country could reduce its effective tax rate below the minimum if it perceives that the benefits outweigh the costs.

However, one important argument of this paper is that there is a relatively small number of players that are key to the Pillar 2 agreement – essentially the large and developed countries in which the headquarters of many important multinational companies (MNEs) are resident (headquarters countries). Within this group, there is certainly a question of incentive compatibility – whether the agreement is in the individual interests of each country. But, conditional on this relatively small group making an agreement, the incentives of the remaining countries are clearly aligned. In this sense, there was no real need – other than political acceptability - for agreement between 140 countries.<sup>5</sup> Agreement amongst OECD members – or indeed, the G7 – would probably have been sufficient to achieve a similar outcome. Whether the agreement is eventually put into place, and whether it survives in the longer term, depends crucially on the smaller group of key players.

This paper analyses these issues in the context of the significant academic literature on tax competition, both at an international and sub-national level. It examines the incentives faced by the different types of players coordinating over a general form of minimum tax and discusses some of the details of the Pillar 2 agreement, set out in 2021. It begins in Section 2 with a necessarily brief and incomplete summary of some of the main issues considered in the academic literature on tax competition. Section 3 points out where there are already substantial forms of coordination in an international setting, and identifies where competition takes place within that coordinated setting. It also sets out the basics of the Pillar 2

---

<sup>5</sup> Having such a wide agreement may have useful political value, which could help foster legitimacy of the new rules as well as cooperative solutions to related issues. But there is also a concern that headquarters countries dominated discussions which led to the agreement.

agreement. Section 4 briefly considers the extent to which the new agreements fundamentally change the nature of the coordinated setting. Section 5 then focuses on some of the details of the Pillar 2 agreement, specifically whether Pillar 2 is incentive compatible, and investigates whether there is likely to be a sufficient critical mass of countries adopting the various provisions. Section 6 briefly concludes.

## ***2. Theory of tax competition in the light of Pillar 2 – a brief and incomplete review***

Reports from the G20/OECD Inclusive Framework that preceded the Pillar 2 agreement identified two possible aims.<sup>6</sup> One was to combat the shifting by MNEs of profit from high tax countries to low tax countries. The second was to combat tax competition amongst countries, primarily for real inward investment. While there appear to have been differences amongst countries on the relative importance they attached to each of these aims, in a sense, they both reflect forms of competition. A key issue in interpreting the Pillar 2 agreement is the extent to which countries might be collectively better off through coordination rather than competition. In this section we consider the balance between competition and coordination in the context of the theoretical literature on tax competition.

In a global economy, individual governments do not have the luxury of choosing their tax systems in a vacuum. The allocations across countries of economic activity, capital, profit and people are affected by differences in effective tax rates amongst them. This paper focuses on the taxation of corporate profit, which has been the most important environment for tax competition between countries.<sup>7</sup> In turn that has been driven by at least three aims, as governments seek to promote the welfare of their own citizens: (a) to attract greater inward real investment (and prevent excessive outward investment); (b) to prevent

---

<sup>6</sup> See, for example, OECD (2019, 2020).

<sup>7</sup> See Keen and Konrad (2013) for a survey of the theory and Devereux and Loretz (2013) for a survey of empirical evidence.

profit being shifted elsewhere (or to attract profit from elsewhere); and possibly (c) to attempt to create a more favourable environment for MNEs headquartered in their country.

Conditional on the location of real activity, the extent of profit shifting depends in principle primarily on the statutory tax rate; if a company shifts \$1 of taxable profit from a country with, say, a 20% statutory rate to a country with a zero tax rate, then it saves 20 cents in its overall tax liability. The gradual decline in statutory rates of corporation tax across the world since the mid-1980s is often taken as evidence of competition in general, though such changes in the statutory rate relate most closely to profit shifting.<sup>8</sup>

The impact of taxation on the location of real activity depends on elements of the tax system other than the statutory rate. The level of investment in an economy has traditionally been associated with the cost of capital, and the effective marginal tax rate (EMTR).<sup>9</sup> This depends not only on the statutory tax rate, but also the tax base, which depends on the deductions that are available. The classic theoretical models of tax competition focus on competition for real investment, and derive the result that equilibrium source-based taxes on capital income are too low in the absence of coordination.<sup>10</sup> Raising the effective tax rate on capital located within a jurisdiction reduces the post-tax rate of return; capital is driven out until the pre-tax rate of return rises far enough to offset the tax.

In the extreme case of perfect capital mobility in a small open economy, the post-corporation tax rate of return is set in a worldwide equilibrium; tax levied in a small open economy must be passed onto host

---

<sup>8</sup> It seems unlikely that any snapshot of the distribution of tax rates across countries is an equilibrium outcome, rather that the process of adjusting tax rates is slow and cumbersome and has not yet reached a final point. An early empirical literature also explored other reasons for common trends in tax rates - for example, yardstick competition – and also explored heterogeneity across countries. See Devereux and Loretz (2013) for a review of such studies.

<sup>9</sup> Hall and Jorgensen (1967).

<sup>10</sup> See Zodrow and Mieszkowski (1986) and Wilson (1986).

country workers and consumers, leaving the post-corporation tax rate of return unaffected.<sup>11</sup> Alternatively, strategic competition amongst a small number of larger players resembles a classic Prisoners' Dilemma game. The uncoordinated Nash equilibrium distribution of effective tax rates is unlikely to be optimal. A single country attempting to raise additional revenue by unilaterally increasing its effective tax rate would become less attractive for inward investment, and may therefore be worse off. However, if all countries coordinated in raising their effective rate, the allocation of investment would not be affected (although total investment may be) and they could all gain. Hence there could be gains from coordination.

The approach of investigating the EMTR is based on the classic position that investment is undertaken up to the point at which the marginal return is equal to the cost of capital. An alternative is to consider discrete location decisions. Instead of an MNE investing in, say, both Germany and France, it may choose to locate a single plant in just one country. In principle, such decisions would depend on a comparison of effective average tax rates (EATRs). There is evidence (Devereux and Griffith, 1998; Feld and Heckemeyer, 2011) that the location decisions of MNEs do depend on such an average tax rate, which in turn also depend on both the tax base and tax rate. Aggregate real investment in a country may therefore depend on two measures of the effective tax rate, which depend differently on the balance of the statutory rate and the tax base.

The choice of the statutory rate and tax base in principle gives governments two possible instruments to address both profit shifting and the location of real activity simultaneously. Devereux et al (2008) construct a model in which governments engage in two-dimensional tax competition: they simultaneously compete over EMTRs for capital and over statutory rates for profit. Although that paper did not set out to

---

<sup>11</sup> See Gordon (1986).

compare outcomes with and without coordination, the basic arguments continue to hold; countries are likely to set lower statutory rates to combat profit shifting, and lower EMTRs to attract greater investment. The balance of the statutory tax rate and the tax base should reflect the elasticities of the shifting of profit and real activity.<sup>12</sup>

International coordination could again raise overall welfare. However, there is an important difference between competition over profit and over real investment, since the latter requires far more infrastructure to support it. In the case of real investment amongst a limited number of countries, coordination amongst those countries can permit them to raise their effective tax rates whilst not affecting the allocation of real investment between them. For profit shifting the position is more difficult, however. Even full harmonisation of statutory rates amongst the 140 countries of the G20/OECD Inclusive Framework could have little effect on profit shifting, if the countries to which the profit is shifted are not part of the agreement. That consideration pushes any such coordination to apply to worldwide profit, wherever it is declared, which is the approach taken by Pillar 2.

Competition is also observed in the context of sub-national competition between, for example, US states. In this context, Suarez Serrato and Zidar (2016) and Fajgelbaum et al (2018), for example, extend tax competition models to account for imperfectly mobile firms and workers. In addition to differences amongst states in corporation tax policies, there may be forms of one-off support to specific businesses as an incentive to locate activities within the jurisdiction. The form of the support may range from a lump-

---

<sup>12</sup> Empirical work on strategic interaction generally examines whether the tax rate in country  $i$  responds to changes in the tax rate in country  $j$ , or alternatively some weighted average of the tax rates in other countries. This raises several econometric issues, including how to determine the set of countries to which country  $i$  might respond, and how to account for the fact that country  $j$  is also likely to respond to country  $i$  thereby introducing endogeneity. For some examples of studies, see Redoano (2007), Devereux et al. (2008) and Crivelli et al. (2016).



sum payment, to the provision of infrastructure, to specific tax holidays.<sup>13</sup> In the context of a competition between jurisdictions for a single investment, the business would seem to have a dominant position, as each jurisdiction would be willing to compete up to the point where the social value net of the support falls to zero.<sup>14</sup> The net value to the winning jurisdiction would depend on the sums that its competitors would be prepared to pay. Indeed, if there is a miscalculation on the part of the jurisdiction, then in an auction between jurisdictions we might expect the winner's curse to be present under which the winning jurisdiction ends up with its social value net of the support falling below zero. It is in these types of circumstances that there is concern about the extent of tax incentives in an international context, especially in lower income countries that would benefit from inward investment.<sup>15</sup>

At first sight it may not seem possible for there to be coordination in these circumstances. But that depends on the nature of the inward investment. Suppose, for example, that there are two jurisdictions and two businesses. If the jurisdictions compete for each business, then we are in the world just described above. But the two jurisdictions could clearly be better off relative to that outcome if they agreed to limit the extent of their subsidy with the result that one business is located in each jurisdiction. However, certainly in the context of subsidies to specific businesses, this seems difficult to coordinate in a broader framework with more jurisdictions and more businesses. What if one business were choosing between jurisdictions A and B, and another were choosing between B and C?

---

<sup>13</sup> Recent forms of support offered in the US is documented by Slattery and Zidar (2020).

<sup>14</sup> See Haufler and Wooton (1999).

<sup>15</sup> Slattery (2020) models the auction process using US data. She finds that subsidy competition increases total welfare by 10% by allocating firms to states with higher valuations. However, most welfare gains do not accrue to the winning localities but are transferred to firms in the form of discretionary subsidies. In aggregate, state and local governments would be better off in the absence of subsidy competition.

Competition through effective subsidies to individual businesses is restricted within the European Union in the form of the state aid rules. These rules are nominally about creating the single market – a level playing field under which all businesses competing in the EU are treated equally. But these rules have been used by the European Commission to attack forms of tax competition, taking action against several EU members (Netherlands, Luxembourg, Ireland and the UK). The issue in these cases is whether the support for a business is discriminatory in the sense that other, competing, businesses do not receive the support. This should not apply to a general tax measure that applied, say, a lower rate for all investment within a jurisdiction.

The third aim set out above – of creating a competitive advantage for MNEs headquartered in one's country - requires still further refinements of the tax system. One characterisation of US international tax policy for some years, for example, was that the US saw little reason to support the tax systems of other countries; US-based MNEs should pay tax on their profit in the US, but it was not in the interests of the US for them to pay tax in other countries. The technical details of the US treatment of foreign income – notably the “check the box” system – meant that the US did little or nothing to prevent US-based MNEs from shifting profits out of other relatively high tax countries. Arguably this aided the competitive position of these businesses, although it might also be seen as preventing a disadvantage, since it should also be acknowledged that other countries generally also did little to support the collection of tax outside their own jurisdictions, presumably for the same reasons.

More generally, though, the treatment of profit arising from outbound investment - including whether profit arising elsewhere should be taxed, on accrual or when repatriated, or whether such tax is restricted to combating avoidance - therefore offers a third instrument for governments; more sophisticated players could juggle with all three instruments to attempt to achieve the best possible outcome in all three

dimensions. This third aim is not independent of the other two, since the location of the parent or headquarters of an MNE is also potentially mobile. It is not clear who would benefit from policies designed to favor a country's "own" businesses, since large and profitable MNEs headquartered in one country are likely to be widely owned throughout the world. The benefits of any additional profit created by the favorable treatment is therefore likely to be dispersed widely. On the other hand, a tax system that favors "domestic" MNEs (in the sense that the headquarters is located domestically) is likely to be attractive to MNEs. To the extent that hosting parent companies and headquarters provide benefits more generally to the host country, then a favorable regime for such companies might be seen as simply part of a system that encourages inward investment.<sup>16</sup>

### ***3. International tax competition and coordination in practice***

The theoretical literature has focused on elements of taxation that can be thought to directly affect behaviour: statutory tax rates, tax bases - and by implication effective marginal and average tax rates - and lump sum payments. It also largely assumes that there is no coordination over these elements, and investigates the benefits of coordination. Yet this is not entirely accurate. The international tax system is made up of a multitude of national laws, international treaties and soft law.<sup>17</sup> From an international legal perspective, countries may tax companies with which it has a sufficient "nexus", or connection. In principle, this implies that companies may tax corporate profit either on the basis of their "residence" (i.e., Country A can tax profit earned by companies resident in Country A – whether the profit arises in Country A or elsewhere) or on the basis of the "source" of their profit (i.e., Country A can tax profit arising in Country A – whether earned by companies resident in Country A or elsewhere). In the context of cross-border activity, two or more countries might have a sufficient nexus and thus the right to tax. Each country

---

<sup>16</sup> Or at least discourages outward investment. The US has struggled to prevent US companies inverting by moving the parent company to a more favorable location for taxation.

<sup>17</sup> Soft law includes, in particular, guidance to the interpretation of treaties.

can unilaterally decide whether and how to exercise this right. If uncoordinated, this may result in the same profit being taxed by more than one country.

Generally, though, this does not happen: the “source” country typically levies a tax on the profit generated there, and the “residence” country either exempts dividend income, or taxes it with a credit for taxes levied in the “source” country. This may happen partly through unilateral action. But it is also partly through international coordination, primarily through bilateral tax treaties that allocate taxing rights over certain types of income between two countries. There are over 3,000 such bilateral treaties. Their primary goal is to remove or reduce double taxation by allocating taxing rights between two contracting countries. In effect, then, through such treaties and through negotiation with another country, a country voluntarily gives up some taxing rights with respect to specific forms of income. Apart from restrictions set out in the treaty, however, countries are free to choose what to tax and how to tax it, including providing relief for double taxation.

Most bilateral treaties follow the OECD Model Treaty, first produced in 1963 and most recently revised in 2017, although its genesis can be traced back to the work of the League of Nations in the 1920s.<sup>18</sup> The United States and United Nations have also produced Model Treaties, that are similar to the OECD Model but depart from it in some respects.<sup>19</sup> The OECD also produces Transfer Pricing Guidelines, which are also influential.

---

<sup>18</sup> OECD (2019). The OECD Model is accompanied by a detailed Commentary which assists in its interpretation and is frequently cited by courts.

<sup>19</sup> United States Department of the Treasury (2016), United Nations (2017).

It therefore seems fair to characterise the international tax system as a combination of coordinated and uncoordinated measures. Its basic building blocks – the allocation of taxing rights across countries based on separate accounting and the arm’s length principle – are in almost universal use, interpreted in detail by OECD guidelines, and for example, modified by the extensive reforms of the G20/OECD BEPS project. The taxation of international flows – such as the taxation of royalty and interest income - is also set out in tax treaties, although specific rates may be agreed by pairs of countries in bilateral agreements. Competition between countries largely takes place within this agreed set of rules, even in cases where there is no treaty.

This set of circumstances is not inevitable or set in stone. It would be perfectly possible for individual countries, or a group of countries, to diverge from these international norms. Indeed, governments and international organisations have made many proposals to do so. For example, the IMF has suggested that developing countries should not sign tax treaties on the grounds that they can be exploited by MNEs engaging in treaty shopping.<sup>20</sup> The European Commission has for many years, and in various forms (the CCCTB and the BEFIT),<sup>21</sup> advocated a system of formula apportionment. In 2016 the US government seriously considered introducing a form of the Destination-Based Cash Flow Tax, which would have also involved diverging from these international norms.<sup>22</sup> Many other proposals have been made which would do likewise.

So why has this combination of competition and coordination persisted for so long? One possible answer could be that there is general agreement that the existing system is preferable to all the alternatives that have been considered, or at least that the costs of change would outweigh the benefits. However, the

---

<sup>20</sup> See, for example, IMF et al (2022).

<sup>21</sup> The “Common Consolidated Corporate Tax Base”, and the “Business in Europe: Framework for Income Taxation”.

<sup>22</sup> See Devereux et al (2021) for an account of the DBCFT.

very fact that proposals for reform have been made implies that such a view has not been universal. Moreover, the G20/OECD has long been engaged in reforming the system, for example, through the BEPS project. The more probable reason is that a shift to a new form of coordination may require agreement by all those that wish to sign up. For example, whilst some European countries clearly have preferred a move to formula apportionment, there have also been others that have been opposed (the unanimity rule for such matters in the EU is clearly a significant hurdle for EU reform).

This is, in essence, the issue of incentive compatibility. Coordination can only be achieved, and be stable, if the participants believe that the coordination is in their individual interests. Similarly, a unilateral move away from a coordinated position would only be taken if it is in the interests of a country to do so.<sup>23</sup> For the existing coordinated system to have survived so long, it must be the case that not only have individual countries not perceived an advantage for withdrawing from the agreement unilaterally, but also that an insufficient number of countries have supported a change to a new form of agreement.

Given this background, we can now turn to a closer examination of the Pillar 2 agreement, and the new coordination that it introduces into the international tax system. The central aim of the agreement is to ensure that there is a minimum level of tax levied on profit, no matter where that profit is earned or declared.<sup>24</sup>

The basic approach of Pillar 2 is first to identify whether a MNE faces an effective tax rate (ETR) of at least 15% in a jurisdiction (consolidated over all its activities within that jurisdiction). The effective rate is

---

<sup>23</sup> Note though, that other issues might be packaged together. For example, countries who support Pillar 1 may be willing to accommodate Pillar 2 as part of a compromise package.

<sup>24</sup> That raises issues in international law – for example, if country B does not tax income declared within its jurisdiction, whether country A has sufficient nexus to that income – that will not be explored here.

measured as “covered taxes” expressed as a percentage of “GloBE income”.<sup>25</sup> This already raises many important definitional issues, which we will also leave to one side, including what taxes are “covered” – essentially the host country corporation tax - and the measurement of “GloBE income” (for a discussion on these, see Hanlon and Nessa, 2022). However, note in the context of the discussion above that the ETR depends on both the statutory rate and tax base, and is a form of effective average tax rate. If the ETR is less than 15%, then a top-up tax becomes due, equal to the top-up rate multiplied by “excess profit”. The top-up rate is simply the difference between the ETR and 15%. Excess profit is GloBE income less a substance-based income exclusion (SBIE), which will be 5% of payroll costs and the value of tangible assets, with a higher proportion over a transition period. Based on European data, Simmler (2022) estimates that, on average, around 21% of total profit in a country would in principle be shielded by the SBIE. The SBIE is therefore a significant part of Pillar 2, and is addressed in detail by Faulhaber (2022). Note that the existence of the SBIE means that the top-up tax does *not* raise the total amount of tax (covered taxes plus the top-up) to 15% of GloBE income. The minimum tax is 15% of excess profit.

The next issue – which is crucial for the incentives facing individual countries as to whether to implement Pillar 2 - is which country collects this top-up tax. The starting point is that the tax would be collected by the headquarters country (i.e. where the ultimate parent of the MNE is resident); this would be implemented through an *Income Inclusion Rule* (IIR). If the headquarters country chooses not to levy the IIR, then other countries in which that MNE operates can instead seek to collect the tax, under a device known as the *Under-Tax Payments Rule* (UTPR). This would be achieved by a country denying deductions for any subsidiaries of the relevant MNE that are resident in that country, up to the point at which there is an additional tax liability equal to the otherwise uncollected top-up tax. There are a set of rules for how

---

<sup>25</sup> GloBE stands for “Global Anti-Base Erosion”. GloBE income is close to a measure of profit in financial accounts; See Hanlon and Nessa (2022) for a discussion of this.

countries would share this element of the top-up tax.<sup>26</sup> The publication of the Model Rules in December 2021 introduced a new feature, however.<sup>27</sup> This is the *Qualified Domestic Minimum Top-up Tax* (QDMTT), which can be levied by the host country (where the profit is declared). If the QDMTT collects the amount of the top-up tax liable under the Pillar 2 agreement, then neither the IIR nor the UTPR will be levied. Even though the QDMTT was revealed some time after the original Pillar 2 agreement, it therefore has a very significant impact on which country receives the revenue from the top-up tax.

#### **4. Does Pillar 2 represent a decisive change in the form of coordination?**

Do Pillars 1 and 2 represent a decisive change in the form of coordination? Any reasonable answer to this question must be “yes” – indeed either of them on their own represents a decisive shift. It is true that both Pillars build on the existing system, and in that sense the existing coordination is not taken away. But Pillar 1 introduces a form of formula apportionment and gives taxing rights to the market country, whilst Pillar 2 sets out an agreed minimum effective tax rate, and an agreed new form of tax base. These are all unprecedented forms of coordination.

So why have they come about, and why were they preferred to any other options for reform? Of course political factors were partly at play, and the role of the OECD secretariat in coordinating the agreement should not be downplayed. However, there are important economic forces creating movement towards each of the Pillars. The origins of Pillar 1 were that countries began to introduce Digital Services Taxes on the grounds that they believed that they were not receiving reasonable tax revenue especially from the profit of highly digitalised businesses; this is discussed by Hines (2022). Here we focus on Pillar 2.

---

<sup>26</sup> For a detailed account, see OECD (2021c).

<sup>27</sup> OECD (2021c).



Pillar 2 also stemmed partly from concerns about profit shifting and MNEs not paying what was deemed to be a reasonable amount of tax. And again the US played an important role. First, in its 2017 tax reform, the US introduced the GILTI provision, which introduced US tax on profit arising outside the US, whether or not it was repatriated to the US; half of foreign income in excess of a 10 percent return on foreign tangible assets is included in US taxable income, with a credit for 80 percent of foreign taxes paid. This could be seen as a strong form of a “controlled foreign corporation” (CFC) rule, under which profit diverted to low tax jurisdictions is nevertheless taxed in the country of the parent. Other things being equal, this increased tax on the profit of US-based MNEs, which created an incentive for them to invert by moving the parent company to another country.<sup>28</sup> Creating this incentive is a drawback of the unilateral introduction of such a tax. In response to creating just such an incentive, the US also tightened its anti-inversion rules, although these could only apply to companies that were already headquartered in the US.

This was followed in 2021 by the Biden administration wanting to raise additional revenue from corporation tax and proposing to raise the US tax rate on domestic profit to 28%. However, the administration was concerned that this would make the US more vulnerable to offshoring if there continued to be a relatively low effective tax rate on foreign income; that is, US companies would be incentivised to undertake their productive activity elsewhere, moving “American jobs” abroad. The “Made in America” tax plan therefore targeted this possibility by proposing to: (a) raise the minimum tax rate on foreign income to 21%; (b) get rid of the exemption for 10 percent of tangible assets; and (c) apply the minimum tax on a country-by-country basis instead of a worldwide basis.<sup>29</sup> But the proposed minimum tax rate potentially created other problems: it could create a competitive disadvantage to US-based MNEs

---

<sup>28</sup> Other things were not equal: the 2017 reform also reduced its tax rate to 21%, and introduced the FDII provision, both of which reduced the incentive to invert.

<sup>29</sup> United States Department of the Treasury (2021).

relative to their non-US competitors who may not face such a high tax rate, and it could further stimulate profit shifting out of the US.

To address that problem, the administration's solution was to try to persuade the rest of the world to do likewise and therefore have all countries introduce minimum tax rates. This was not a shot in the dark, of course, since the Pillar 2 proposal was already on the table in international negotiations. This was because other countries – notably France and Germany – also considered a worldwide minimum tax to be a useful way forward to combat profit shifting. Yet the US embrace of Pillar 2 clearly kick-started the serious negotiations, eventually leading to the 2021 agreement. This account does not, though, explain why nearly 140 countries agreed to the Pillar 2 proposal in October 2021. We now turn to analysing the reasons for that agreement in more detail. Specifically, we ask whether the agreement is incentive compatible, in that it is in the private interests of all countries to implement Pillar 2, both in the short run and the longer run.

## **5. *Is Pillar 2 incentive compatible?***

### *a. The IIR and UTPR: is there a critical mass?*

A starting point for the analysis of Pillar 2 is to consider the simpler case of a minimum tax levied by the country of residence of the parent company of an MNE (the headquarters country) on its worldwide income – this is essentially the Pillar 2 IIR provision (although we abstract from many important details of the provision for present purposes). Clearly, the GILTI provision in the US is a version of such a tax, which was implemented unilaterally by the US. As noted above, however, unilateral implementation of such a tax runs the risk that parent companies will seek to move, or set up, in a country that does *not* implement such a tax. That risk varies amongst countries, depending on their size, structure of the economy, strength of their capital exports, and capacity to create legal obstacles to companies shifting their place of

residence. In these dimensions, the US is relatively strong, and so it is not surprising that, if any country implemented a minimum tax unilaterally, it might be the US. Presumably the architects of the GILTI provision believed that the costs associated with its unilateral implementation were outweighed by the benefits, mostly in combating profit shifting.

Since there have not been similar unilateral moves by other countries, we could infer that the balance of costs and benefits are viewed differently by other countries. In essence, apart from possibly the US, there appears to be no incentive for countries to unilaterally implement an IIR.<sup>30</sup>

However, the position would be different in the event that such a worldwide minimum tax were coordinated. If all countries in the world agreed to implement such a minimum tax, then there would be no opportunity for MNEs to move the location of their headquarter companies to avoid the tax. That is an extreme case, of course. What if some countries nevertheless held out, and decided not to implement the minimum tax? Then there would be at least some incentive for MNEs to shift their headquarters to one of those countries. The strength of that incentive would depend on the economic conditions in those countries, but it is at least conceivable that parent companies could seek to congregate in small tax havens which do not implement the minimum tax.

The position here is akin to a classic cartel game, in which group of businesses agree to fix a price for sales to third parties which removes competition between them, and which permits them to earn higher profit both individually and collectively. Indeed, coordinating on a minimum tax is effectively creating a cartel of governments agreeing to charge a minimum tax rate to achieve higher tax revenues in exactly the same

---

<sup>30</sup> However, in September 2022, a group of 5 EU countries – France, Germany, Italy, Netherlands and Spain - announced that they were “fully determined to follow through on our commitment” to implement the Pillar 2, even in the absence of EU agreement.

way. One problem with such a cartel is that there may be an incentive for each player to agree to a price, but then to renege on the agreement by undercutting its rivals. In the short run at least, that would earn that player higher profit as it could dominate the market. Whether that advantage would survive in the longer run depends on the reactions of the rival companies. If, for example, the cartel falls apart as a result, then all the businesses would earn lower profits in the longer run. To prevent any player renegeing on the agreement, there must be a credible threat by the other players that they would take action that would make the renegeing business worse off in the long run. To be credible, the remaining players must not be worse off by carrying out the threatened action compared with not doing so.

A mechanism to effectively create such a credible threat has been introduced into Pillar 2 through the UTPR provision. The key element is that if the country of the parent does not introduce the IIR on the worldwide income of the MNE, then other countries in which the MNE has a presence may collect the same revenue through denying deductions to any subsidiaries of that parent's MNEs resident in their countries (subject to limitations, and rules on how the total is allocated).

Suppose that a large, developed country which is the residence of many MNE parent companies, and which seeks to attract more parent companies, decided not to implement Pillar 2. Then any companies with parents in that country would nevertheless be liable to the Pillar 2 top-up tax to the extent that they had reasonably significant operations in other countries which implemented the UTPR. Whether this would be a significant factor in the choice of whether to implement an IIR is an empirical question: it depends on how many – and which - other countries implemented a UTPR, and also on the number of countries in which the relevant MNEs operate. These two questions together determine whether a “critical mass” of countries implementing Pillar 2 would be sufficient for other countries to have an incentive to implement it.

To address this question, Simmler (2022) provides an empirical analysis of the location of subsidiaries of MNE groups which would be subject to Pillar 2 – that is, with total revenues above €750 million. The data used are consolidated financial statements for MNEs in 2018, from the ORBIS database, provided by Bureau von Dijk. In total, the analysis is based on 11,334 financial statements, with aggregate turnover of €65 trillion and aggregate profit of €5 trillion.<sup>31</sup>

Table 1 reports Simmler’s results on the scope of MNEs in G7 countries. The first column identifies the country of the MNE parent, and the second column aggregates the total profit of all MNEs whose parent is resident in that country. For example, the total profit of US-based MNEs in 2018 was around €949 billion. The third column presents an estimate of the share of that profit that is attributable to MNEs that do *not* have a subsidiary in another G7 country; for example, only 4% of the total profit of US-parented MNEs is attributable to MNEs that do not have a subsidiary in another G7 country. The remaining columns set out the proportion of the total profit identified in column 2 that can be attributed to MNEs that have at least one subsidiary in each other country. For example, 91% of the aggregate profit of US MNEs can be attributed to those US MNEs that have a subsidiary in Canada.

Table 1 makes clear that the vast majority of profits of MNEs with parents in G7 countries can be attributed to MNEs that also have a presence in other G7 countries. The implication is that, for each of the G7 countries, if the other G7 countries adopted the UTPR provision, then *not* introducing the IIR is unlikely to be a sensible strategy. That country would give up the right to implement the IIR, but instead of creating a competitive advantage over other countries, the other countries would simply collect the tax revenue

---

<sup>31</sup> The ownership data is available for approximately half of the sample, although there is no evidence of any systematic bias in whether it is included.

instead. Indeed, this position is largely true even if a subset of the G7 countries introduced the UTPR. For example, suppose that the UK decided not to introduce the IIR, but that the US did introduce the UTPR. Then Simmler estimates that 94% of the foregone IIR tax base in the UK could instead become a UTPR tax base for the US. A “threat” by the US to introduce the UTPR is therefore a convincing strategy in persuading the UK to introduce the IIR.

**Table 1: Total Profits of in-scope MNEs by G7 Headquarter or Subsidiary Country**

HQ Country	Total Profit before Tax (\$billion)	Profit share attributable to MNEs without a subsidiary in another G7 country	Share of profit of MNEs with subsidiaries in each other G7 country						
			USA	Canada	Japan	Germany	France	UK	Italy
USA	949	4%		91%	65%	73%	77%	86%	74%
Canada	50	1%	98%		13%	34%	30%	46%	22%
Japan	366	5%	94%	62%		71%	72%	80%	59%
Germany	116	4%	89%	80%	71%		94%	90%	87%
France	97	1%	93%	85%	76%	96%		94%	95%
UK	223	3%	94%	88%	73%	84%	85%		70%
Italy	43	11%	76%	57%	27%	75%	75%	82%	

Source: Simmler (2022).

In short, this analysis suggests that the G7 would provide a critical mass for the implementation of Pillar 2. Indeed, even a subset of the G7 would also provide a critical mass. If the G7 did agree to implement the IIR and the UTPR, then the vast majority of MNE worldwide profit would be subject to a Pillar 2 top-up tax.

Should they do so? This brings us back to the cartel game. In the absence of an agreement, only the US has been prepared to introduce a minimum tax on the global profit of its MNEs. But, if the US unilaterally introduced a UTPR, then it would prove less costly for other G7 countries to adopt an IIR, in terms of the

incentives for parent companies to avoid locating in those countries. The incentive to introduce an IIR becomes stronger the more countries introduce the IIR and UTPR. So, while the precise calculations facing each individual country are uncertain, it seems plausible that joining the coordinated Pillar 2 agreement on the IIR and UTPR would prove advantageous to G7 countries, and then hence also to other countries.<sup>32</sup>

b. *The Qualified Domestic Minimum Top-Up Tax (QDMTT)*

Suppose that a critical mass of larger, headquarters countries introduce an IIR and UTPR. What are the incentives for host countries (where profit is declared)? We should distinguish the incentive to modify the domestic tax system in order to tax profits arising domestically, and the incentive to introduce an IIR or UTPR.

Because there are relatively few MNEs headquartered in predominantly host countries, the question of whether such countries should introduce an IIR or UTPR is not very pertinent for the overall success of Pillar 2. Nevertheless, when an MNE parent is located in a host country, the incentives for that country are the same as described earlier for headquarters countries. If the country does not operate an IIR, the worldwide profit of that MNE is likely to be subject to the top-up tax through a UTPR elsewhere. Not introducing an IIR therefore gives other countries the right to collect the tax revenue, whilst having little or no impact on incentives for the MNE. In that case, there is an incentive for even host countries to introduce an IIR.

---

<sup>32</sup> A caveat here is if the country not implementing an IIR – say, hypothetically the US – chose to retaliate against countries that imposed the UTPR on subsidiaries of MNEs headquartered in the US. That seems unlikely as all major countries (including the US) have in principle signed the agreement in support of Pillar 2, even if they are not obliged to implement it. But if a future US government took such an approach, then it could have a significant impact on whether other countries continued to implement a UTPR.

Before the publication of the Pillar 2 Model Rules in December 2021, the basic position with respect to domestic taxation depended on the assumption that profit arising in those jurisdictions would potentially be taxed at a minimum effective rate of 15% through an IIR or UTPR (although there was some uncertainty about the precise role to be played by the SBIE). Abstracting from potential loopholes in the system, this would give such countries an incentive to set the corporation tax liabilities of in-scope MNEs to at least the minimum. Setting the tax liability below this would not attract inward flows of investment or profit, since any tax uncollected below this minimum would instead be collected by another country through an IIR or UTPR. There would therefore be a clear incentive for the host country to collect the tax revenue, rather than see it collected elsewhere.

This basic position was not changed by the introduction of the QDMTT in the Model Rules, although the precise nature of the optimal minimum domestic tax changed. This has been analysed in some detail by Devereux, Vella and Wardell-Burrus (2022a, b). As set out above, the basic position under the Model Rules is that the minimum tax will be 15% of “excess profit”. In the absence of further domestic taxes, the IIR charged by the country of the parent will be this amount less the domestic “covered tax” liability.

The host country has the opportunity to introduce a QDMTT equal to the size of the top-up tax. If it does so, then the top-up tax is deemed to have been paid, and there will be no IIR or UTPR. In effect, the country of the parent offers a full credit for the QDMTT levied by the host country against the IIR (and in the absence of the IIR, other countries offer the same credit against the UTPR). As long as the host country believes that there will be a top-up tax in the form of an IIR or UTPR, it has a clear incentive to instead collect that revenue in the form of a QDMTT. The most aggressive competitive position that the host country can take (subject to caveats below) is to set the main corporation liability to zero, and to introduce



a QDMTT to collect the top-up tax. Total tax collected would then simply be the 15% of excess profit; and this would be collected by the host country.

*c. Implications for tax competition*

Where does this leave tax competition between countries? Competition by countries for inward investment will be limited by the top-up tax of Pillar 2. Before Pillar 2 is implemented, countries may compete with each other without any restriction. In a competition for inward investment from a single MNE, for example, this process might not only end up with zero tax collected from profit, but even with a subsidy. With Pillar 2 and in the absence of refundable tax credits (discussed below), competition over the taxation of profit is effectively limited to 15% of “excess profit” as defined by the Model Rules. That is, Pillar 2 introduces a floor on tax competition. However, for countries that seek to collect more tax revenue from inward investment (i.e., in excess of the minimum tax), there is no change in the incentive to compete.

A similar position arises with respect to competition between countries for inward flows of profit, in the form of profit shifting. In the absence of Pillar 2, and subject to the restrictions of various anti-avoidance provisions including those introduced by the BEPS project, countries could attract such mobile profit by reducing rates - in the extreme, down to zero. Pillar 2 instead sets a minimum marginal tax rate on inward flows of profit of 15%.<sup>33</sup>

These floors on the tax on flows of both real activity and profit should also impact the choice of tax rates in other higher-tax, headquarters countries. Based on the empirical evidence, it seems reasonable to

---

<sup>33</sup> It may not be exactly 15%, since inward flows of profit would also affect the denominator in the ETR calculation: see Devereux, Vella and Wardell-Burrus (2022b).

assume that governments set their tax rates in response to those set elsewhere. A rise in the tax rate in one country is therefore likely to stimulate a rise in the tax rate in competitor countries.<sup>34</sup> In effect the downward competitive pressure in higher tax countries will be reduced, possibly leading to still higher statutory and effective tax rates in those countries.

#### d. *Caveats*

There are four caveats to this analysis.

The first caveat concerns deductions from the tax base in a host country. The Pillar 2 rules make some adjustments for timing differences in the definition of taxable income, relative to GloBE income, mostly through the deferred tax provision.<sup>35</sup> Other taxable deductions are effectively ignored: they reduce the “covered tax”, and hence effective tax rate for Pillar 2 purposes, and so increase the size of the top-up tax. This places an effective limitation on the use of the tax base – through deductions and holidays, for example – as a form of competition. A lower base, relative to GloBE income, will simply raise the top-up tax due.

However, “qualified refundable tax credits (QRTCs)” are treated differently – as a form of grant that increases the denominator of the ETR, rather than as a credit against the covered tax that reduces the numerator. As demonstrated in Devereux, Vella and Wardell-Burrus (2022b), and elsewhere, this approach can reduce the size of the top-up tax substantially and leave the net tax payment considerably lower than if the credit were treated as a reduction in the tax liability. Whether this proves to be a significant factor for countries choosing their optimal tax systems remains to be seen; there may be an

---

<sup>34</sup> In principle the opposite could happen, but most evidence suggests this response.

<sup>35</sup> See Hanlon and Nessa (2022).

incentive to use QRTCs, but there is a cost that these credits must at least in principle be refundable, which may raise concerns of fraudulent activity by taxpayers.

The second caveat is the role of CFC rules applied by the country of the parent. These exist at present in a variety of forms, primarily applying to passive, rather than active, income. However, the Pillar 2 rules currently state that any such taxes should be included in covered taxes, i.e., the numerator of the ETR calculation. In principle, this creates an additional opportunity for headquarters countries to collect tax. To the extent that the ETR is below 15%, the headquarters country could introduce a CFC rule that effectively takes it up to 15%. If it did so, there would be no further top-up tax, and the QDMTT would raise no revenue for the host country. The primary effect of this would be to shift the revenue from the host country to the headquarters country, without otherwise changing incentives. The practical importance of this point is limited, however. If there were indeed a move by headquarters countries to try to capture revenue in this way, then – as long as the CFC rules gave a credit for the corporation tax in the capital importing country - the host countries could respond by increasing their own corporation tax liabilities, thereby negating the revenue-raising power of the CFC rules.<sup>36</sup>

The third and fourth caveats are potentially more serious, and go to the heart of the argument developed so far. The third is that the Pillar 2 agreement is extremely complex. It will be costly to administer and may add considerably to the existing uncertainty regarding the taxation of profit. It is possible that such complexity and greater costs will eventually undermine the whole proposal. Further, and partly due to the complexity, there may be ways in which MNEs can undermine the proposal through new forms of profit shifting. In this case, the gains from implementing it would be significantly reduced. One issue is how far the agreed system could be simplified. This is debatable, since implementing it does require

---

<sup>36</sup> See Wardell-Burrus (2022) for a discussion of these and related issues.

creating what is in effect a new form of taxation on top of the existing system, with its own tax base, for example. But some forms of simplification are feasible; see for example, the proposals of Döllefeld et al (2022).

The fourth caveat addresses the crux of the argument that introducing the UTPR is likely to create sufficient incentives for a critical mass of countries to adopt an IIR. That, in turn, should provide incentives for host countries to adopt a QDMTT. In this scenario, higher tax revenue is captured by host countries but that outcome may reduce the incentive of countries to introduce the UTPR in the first place. The primary incentive for high tax countries is presumably to reduce profit shifting and tax competition, and thereby to permit them to have higher effective tax rates and revenues on profit. These advantages would still hold. But it seems likely that – if Pillar 2 works as intended – the UTPR will be a backup provision which is unlikely to raise much, or indeed any, revenue directly. Nevertheless, countries would still have to introduce and implement a UTPR, incurring costs of administration and enforcement in doing so, in order to create the necessary incentives for a general implementation of Pillar 2.

It is possible that those costs would be seen as unnecessary from the perspective of an individual country. After all, the function of each country's UTPR would be to support the entire structure of Pillar 2, rather than gaining any particular advantage to the country implementing it. But if countries were unwilling, or became unwilling, to implement a UTPR, then this crucial support for the IIR would be lost. Without UTPRs being in place, the incentive to implement an IIR is reduced, and consequently, so would the incentive to introduce a QDMTT or to raise the host country corporation tax rate to 15%. The importance of this caveat seems likely to depend on the costs of administering a UTPR. If these are relatively small, then at least some countries would be willing to implement a UTPR. And the importance of the critical mass for this

question should not be forgotten. It is not necessary that all countries implement an IIR and UTPR, but only a relatively small number of larger headquarters countries.

## 6. *Conclusions*

In October 2021, the OECD's Inclusive Framework reached an unprecedented agreement to introduce a global minimum effective tax on MNE profit; its Pillar 2. This raises two important and related questions. Why did they make such an agreement? And will it be implemented and become a stable part of the international tax architecture? The answers to both questions lie in whether the agreement is incentive compatible for individual countries – that is, whether they have the incentive to implement and then maintain it. The existing international tax system is undermined by the existence of a small number of very small open economies acting as tax havens that exploit the existing coordinated rules in such a way that erodes the taxes on profit of other countries.

While it might be the case that the Pillar 2 agreement could be similarly undermined, it contains a number of provisions to bolster the incentives of countries to take part. The key element is that countries need to believe that if they do not tax their allocated profit, then another country will do so. In this case, the gains from not taxing the profit – in terms of inward flows of investment and profit, or discriminating in favour of domestic MNEs – disappear and each country may as well collect its allocation of tax revenue. The argument made in this paper is that the mechanisms introduced by Pillar 2 are likely to be decisive. As long as a relatively small number of large, headquarters countries decide to implement the proposal, there will be a sufficient critical mass to create incentives for other countries to take part. And such a system cannot easily be undermined by some countries opting out.

An important caveat is that the complexity of the proposal and the likely costs of implementation could yet undermine the whole proposal. In addition, some of the vital elements of the proposal required for incentive compatibility are unlikely to raise revenue directly, potentially reducing the incentive of countries to implement them.

## References

- Crivelli, Ernesto, Ruud De Mooij and Michael Keen (2016) "Base Erosion, Profit Shifting and Developing Countries", *FinanzArchiv* 72.3, 268-301.
- Devereux, Michael P., Alan J. Auerbach, Michael Keen, Paul Oosterhuis, Wolfgang Schön, and John Vella (2021) Taxing Profit in a Global Economy, Oxford: Oxford University Press.
- Devereux, Michael P. and Rachel Griffith (1998) "Taxes and the location of production: evidence from a panel of US multinationals", *Journal of Public Economics* 68.3, 335-367.
- Devereux, Michael P., Ben Lockwood and Michela Redoano (2008) "Do countries compete over corporate tax rates?" *Journal of Public Economics* 92.5-6, 1210-1235.
- Devereux, Michael P. and Simon Loretz (2013) "What do we know about corporate tax competition?", *National Tax Journal* 66.3, 745-774.
- Devereux, Michael P., John Vella and Heydon Wardell-Burrus (2022a) "Pillar 2: Rule Order, Incentives, and Tax Competition", *Oxford University Centre for Business Taxation Policy Brief*.
- Devereux, Michael P., John Vella and Heydon Wardell-Burrus (2022b) "Pillar 2's Impact on Tax Competition", *Oxford University Centre for Business Taxation Working Paper 22/11*.
- Döllefeld, Cedric, Joachim Englisch, Simon Harst, Deborah Schanz and Felix Siegel (2022) "A Simplification Safe Harbor for Pillar 2", *Tax Notes International*, Vol. 106, No. 12, pp. 1513-1523.
- Fajgelbaum, Pablo, Eduardo Morales, Juan Carlos Suarez Serrato, and Owen Zidar (2018) "State Taxes and Spatial Misallocation". *Review of Economic Studies*, 86.1: 333–376.
- Feld, Lars P. and Jost H. Heckemeyer (2011) "FDI and taxation: a meta-study", *Journal of Economic Surveys* 25.2, 233–272.
- Gordon, Roger H. (1986) "Taxation of Investment and Savings in a World Economy", *American Economic Review* 76, 1086-1102.

- Hall, Robert E. and Dale W. Jorgenson (1967), "Tax policy and investment behavior", *American Economic Review* 57, 391–414.
- Hanlon, Michelle and Michelle Nessa (2022) "The Use of Financial Accounting Information in the OECD BEPS 2.0 Project: A Discussion of the Rules and Concerns", *National Tax Journal*, forthcoming.
- Haufler, Andreas and Ian Wooton (1999) "Country size and tax competition for foreign direct investment", *Journal of Public Economics* 71.1, 121-139.
- Hines, James R. Jr, (2022) "Digital Tax Arithmetic", *National Tax Journal*, forthcoming.
- International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank Group (2022) "The Platform for Collaboration on Tax Toolkit on Tax Treaty Negotiations".
- Keen, Michael J. and Kai Konrad (2013) "The theory of international tax competition and coordination", in Alan Auerbach, Raj Chetty, Martin Feldstein and Emmanuel Saez, eds. The Handbook of Public Economics, Volume 5, 257-328, Amsterdam: Elsevier.
- OECD (2019) 'Programme of Work to Develop a Consensus Solution to the Tax Challenges Arising from the Digitalisation of the Economy', May 2019, OECD, Paris.
- OECD (2020) 'Statement by the OECD/G20 Inclusive Framework on BEPS on the Two-Pillar Approach to Address the Tax Challenges Arising from the Digitalisation of the Economy', January 2020, OECD, Paris.
- OECD (2021a) 'Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy', 1 July 2021, OECD, Paris.
- OECD (2021b) 'Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy', 8 October 2021, OECD, Paris.
- OECD (2021c) 'Tax Challenges Arising from the Digitalisation of the Economy Global Anti-Base Erosion Model Rules (Pillar Two)', 20 December 2021, OECD, Paris.



- OECD (2022) 'Tax Challenges Arising from the Digitalisation of the Economy – Commentary to the Global Anti-Base Erosion Model Rules (Pillar Two)', OECD, Paris.
- Redoano, Michela (2007) "Fiscal Interactions among European Countries. Does the EU Matter?", CESifo Working Paper 1952.
- Suarez Serrato, Juan Carlos, and Owen Zidar (2016) "Who Benefits from State Corporate Tax Cuts? A Local Labor Markets Approach with Heterogeneous Firms", *American Economic Review*, 106.9: 2582–2624.
- Simmler, Martin (2022) "A critical mass for Pillar 2?", presentation at Oxford University Centre for Business Tax Conference, Pillar 2 – what will be the impact?, April 4, 2022; recording available at <https://www.youtube.com/watch?v=BeekSWoAh9I&t=2s>.
- Slattery, Cailin (2020) "Bidding for Firms: Subsidy Competition in the U.S.", Columbia Business School.
- Slattery, Cailin, and Owen Zidar (2020) "Evaluating State and Local Business Incentives." *Journal of Economic Perspectives*, 34.2: 90-118.
- United Nations (2017), "Model Double Taxation Convention between Developed and Developing Countries".
- United States Department of the Treasury (2016), "United States Model Income Tax Convention".
- United States Department of the Treasury (2021), "Made in America Tax Plan".
- Wardell-Burrus (2022) "Should CFC Regimes Grant a Tax Credit for Qualified Domestic Minimum Top-Up Taxes?", *Tax Notes* July 13.
- Wilson, J.D. (1986), "A theory of interregional tax competition", *Journal of Urban Economics* 19(3):296–315.
- Zodrow, G.R., and P. Mieszkowski (1986), "Pigou, Tiebout, property taxation, and the underprovision of local public goods", *Journal of Urban Economics* 19(3):356–370.