

RESEARCH ARTICLE

A Practical Proposal to end Corporate Tax Abuse: METR, a Minimum Effective Tax Rate for Multinationals

Alex Cobham¹  | Tommaso Faccio²  | Javier Garcia-Bernardo³  | Petr Janský³  | Jeffery Kadet⁴ | Sol Picciotto⁵

¹Tax Justice Network, Chesham, UK

²Nottingham University, Nottingham, UK

³Institute of Economic Studies, Faculty of Social Sciences, Charles University, Praha, Czech Republic

⁴University of Washington, Seattle, Washington, USA

⁵Lancaster University, Lancaster, UK

Correspondence

Alex Cobham, Tax Justice Network, 38 Stanley Avenue, Chesham HP5 2JG, UK.
Email: alex@taxjustice.net

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Abstract

An initiative is needed to break the logjam in the international negotiations to reform taxation of multinational enterprises (MNEs). The explosion of profit shifting observed since the 1990s has resulted in hundreds of billions of dollars of tax revenues being lost around the world each year – but reform efforts have thus far failed to deliver measurable progress on the primary agreed goal of better aligning MNEs' taxable profits with the location of their real economic activity. More recently, countries have committed also to ensure that MNEs' global profits are subject to a minimum effective tax rate, but international agreement depends on designing an approach that can gain wide support. Our proposal for a minimum effective tax rate (METR) could be applied to MNEs by any countries that choose to do so, whether they are home to MNEs, host of MNEs, or both. The METR would be compatible with existing tax treaties, but being non-discriminatory it also complies with other international obligations and could be introduced unilaterally. Economic modelling shows the METR would deliver major revenue gains for participating countries, and adoption would also contribute to, rather than impede, momentum for a more comprehensive multilateral agreement.

1 | CONCERTED ACTION TO BREAK THE LOGJAM OF INTERNATIONAL CORPORATE TAX REFORMS

The international efforts to reform taxation of multinational enterprises (MNEs) have reached a critical turning point. Launched after the great financial crash a decade ago, and following the explosion in profit shifting that took place from the 1990s onwards (Cobham & Janský, 2019), an effective outcome for this initiative is now even more urgent as the world economy is plunged into a new crisis sparked by the global pandemic. The introduction of country-by-country reporting (CbCR) for MNEs has given tax authorities unprecedented insights into profit shifting as it affects their tax base; and the

publication of limited, aggregate data has shown the global scale of the problem to be around US\$1 trillion each year in tax losses (Garcia-Bernardo & Janský, 2021; Tax Justice Network, 2020a). Yet these attempts to reform international rules designed a century ago have created a logjam, due mainly to the perceived need to achieve an illusory worldwide consensus among states.

Considerable progress has been made in the international discussions and negotiations in the framework of the G20/OECD project on base erosion and profit shifting (BEPS), now under the umbrella of the Inclusive Framework for BEPS. However, these international discussions have been counterpointed by unilateral actions by states. Hence, the process has resembled a complex game, in which participants reach partial

agreements while also taking initiatives that tilt the negotiating table. A further problem is that the negotiating table itself is dominated by the biggest OECD member states, resulting in unconstructive bargaining between them, instead of genuine attempts at a global solution that could benefit all.

There is now an opportunity to take stock of the international process, and to look for a way through to an eventual comprehensive solution. The Secretariat of the Organisation for Economic Cooperation and Development (OECD) in October 2020 delivered two complex technical blueprints, which were approved by the Inclusive Framework (OECD, 2020a, 2020b). However, key political issues remain unresolved, and devils lurk in the technical details, as shown in the public consultations. The most promising avenue for a multilateral solution would be a minimum international corporate tax, but it must be formulated in a way that can be effective and widely accepted as fair. It should enable states to tax MNEs on both inbound and outbound investment, placing them on an equal footing with domestic firms. Such a tax could command support from a strong coalition of both higher-income and lower-income states.

We suggest that a group of interested countries, supported by regional groupings and international organisations, should take a lead in developing such a tax based on fair principles which could achieve widespread acceptance. Such a group should include lower-income countries¹ as well as G20 and other major states. The negotiations were given a fresh impetus in April 2021 by proposals from the new US administration, which needs an international agreement on a strong global minimum tax to help deliver its own ambitious domestic tax and spending plans. A fair and balanced mechanism for a minimum effective tax rate (METR) that could command wide support could provide the much-needed lever to break the logjam on international corporate tax reform.

The METR offers a way forward that can build on the progress made, while also learning from the difficulties experienced. Our proposal uses basic building blocks from the latest blueprints, and follows directions suggested in submissions made during the BEPS process and some of the measures adopted by states. Its aims reflect those agreed by participants in the process, which are to achieve:

1. allocation of the income of MNEs based on 'where their activities occur and value is created' (G20, 2013);
2. taxation of their net profits on a basis that all countries, companies and the general public can accept as equitable; and
3. a methodology that is easy to administer and transparent.

Policy implications

- The METR proposal could solve the problem of global policy reforms around corporate tax.
- The METR offers a much simpler alternative to the OECD's current problematic proposal, and would recover much more of the revenues currently lost to corporate tax abuse.
- The METR could be adopted by a coalition of the willing, instead of requiring global treaty changes.
- The METR would eliminate much of the unearned profits currently booked in 'tax havens', and largely ensure taxes are paid where profits are earned.

Our proposal also has further key advantages:

4. it does not require changes to tax treaties;
5. it allocates taxation rights fairly to all states instead of the proposed complex and inequitable 'ordering' rules;
6. it can be introduced by states under their own domestic laws; and
7. it creates a dynamic for international convergence.

Overall, depending on the level of the minimum tax rate and the range of countries participating, we assess that the METR proposal would raise tens or hundreds of billions of dollars in additional revenues around the world, by curbing the incentives and the ability of MNEs to shift their profits. In the following sections we briefly explain the context of current OECD negotiations; set out the METR proposal and its rationale; and then model the likely outcome, comparing the METR with the current OECD blueprint and other proposals to show the absolute and relative revenue impacts, at the level of income-regional groups and individual countries.

2 | THE OECD BLUEPRINTS

The current OECD process began in 2019 with great promise. The original BEPS (Base Erosion and Profit Shifting) initiative that ran from 2013–2015 was the last great attempt to defend the arm's length principle, which seeks to allocate taxable profit within multinational groups as if the individual subsidiaries were trading with each other at market prices. The realization that a more fundamental rethink was needed led to the renewal of negotiations.

'BEPS 2.0' therefore took two starting points that broke with its predecessor – and these formed the two pillars of the approach. Pillar 1 addressed the ease of

profit shifting, committing to go beyond both the arm's length principle and the traditional 'permanent establishment' definition, thereby apportioning at least some of multinationals' global profits according to where their real economic activity took place. Pillar 2 addressed the incentives for profit shifting, by proposing a global minimum tax to put a limit on the race to the bottom.

Despite this promising start, the process soon stalled. The blueprints published by the OECD in October 2020 (OECD, 2020a, 2020b) contained positive elements and resolved many key technical problems. However, the design of both was complex, which would make them difficult to apply by hard-pressed tax authorities, especially in lower-income countries. The reason is clear: the scheme attempts to achieve consensus amongst all governments involved by combining incompatible approaches.

2.1 | Pillar 1

The Pillar 1 proposals introduce a formulaic element, to assign some of each MNE's global profits to the jurisdictions where the MNE's sales take place (labelled 'Amount A'). However, that proportion would be fixed by percentages decided politically, applied as one-size-fits-all. This would leave in place the present complex and flawed transactional transfer pricing methods for allocating the bulk of MNE income.² Since these attribute profits separately to each individual entity in the MNE group, the blueprint proposes intricate rules to reconcile the formulaic and separate entity approaches, avoid double counting and eliminate double taxation.

To address the uncertainty this would create, the scheme would rely on each MNE filing a self-assessment with a 'lead tax administration'. This would usually be its home country, which would be responsible for validating the calculations and the allocations (OECD, 2020b, para. 717). Access to this documentation by other relevant tax authorities would depend on creation of a system for their exchange, similar to the current arrangements for CbCR. Disagreements among affected countries would be dealt with in review panels of officials representing them, and conflicts would ultimately be settled by binding decisions from 'determination panels'. Such a system could only be introduced by amending all tax treaties, primarily by a multilateral treaty signed and ratified by all states, with no opt-outs, which would be unprecedented (OECD, 2020a, para. 839).

Pillar 1 would cover only MNEs above the size threshold of EUR 750m annual turnover (in common with Pillar 2); and is further limited to those with revenues from either 'automated digital services' or 'consumer-facing business'. The 'new taxing right' would therefore apply to some 2,300 of the 8,000 MNEs above the threshold (OECD, 2020a, p. 63), although the OECD's

reports of 2015 and 2018 under Action 1 of the BEPS project showed cogently that digitalisation has affected the whole economy and any solution should not be ring-fenced.

The OECD's impact assessments showed that the likely benefits from Amount A would be 'modest – less than 1 per cent of global CIT revenues' (OECD, 2020c, p. 61); in return, countries would be required to accept the locking-in of flawed transfer pricing methods. Overall, it was difficult to see why there should be widespread take-up by states, let alone the legally binding universal coverage that effective implementation would require. The proposals put forward by the US in April 2021 envisaged a drastic simplification, using quantitative measures to target only the largest and most profitable MNEs, perhaps as few as one hundred.³ This would be much easier to implement, through intergovernmental agreements, but would clearly be only a stop-gap. Emboldened by this, the African group proposed an alternative simplified method with a much more comprehensive scope, but which would face implementation problems under tax treaties.⁴

2.2 | Pillar 2

A global corporate minimum tax should have fewer implementation problems, because such a tax can be devised to be compatible with tax treaties. Indeed, the US tax reforms of 2017 included measures that impose a minimum level of tax on MNEs: the global intangible low-taxed income (GILTI) provisions on US-based MNEs, and the base erosion anti-abuse tax (BEAT) mainly focused on foreign-based MNEs. The OECD proposals under Pillar 2 are along similar lines. Others have also acted unilaterally, notably the diverted profits taxes introduced by the UK and Australia. However, it would be preferable to formulate a minimum tax as a joint initiative by a group of willing states to develop a coordinated solution.

The Pillar 2 proposal, the Global Anti-Base Erosion Tax (GLOBE), however, has been deeply compromised by the attempt to combine it with Pillar 1 into a single multilateral system. First, aiming at consensus among all states has weakened its ambition. A strong global minimum tax could both reduce the scope for profit-shifting by MNEs, and also counteract the pressures on states to give them preferential tax treatment, benefiting all governments and greatly improving competitive equality for business. However, the concept is still opposed by governments of some states that have become captured by the international tax avoidance industry, and have been acting as conduits or tax havens. A coalition of willing states could design strong measures which could also, if done well, generate a positive momentum for broader multilateral measures to follow.

The second consequence of the consensus approach is that the Pillar 2 blueprint is excessively technically complex. As with Pillar 1, it rightly starts from the reality that MNE groups operate as unitary, centrally directed organisations in which each entity performs its assigned functions, rather than acting independently.

The two main provisions are an income inclusion rule (IIR), and an undertaxed payment rule (UTPR). The IIR allows the MNE's ultimate parent country (or, failing that, an intermediate parent's country under a 'top-down' approach) to apply a top-up tax to the income of its foreign constituent entities, to ensure that they are taxed at the agreed minimum effective tax rate (ETR), applied by jurisdiction.⁵ The UTPR, meanwhile, allows source countries to apply the top-up tax to undertaxed profits of an MNE group, by applying adjustments related to intra-group transactions to the taxable income of an affiliate of that MNE in the source country. The IIR and the UTPR use the same computational rules to determine the top-up tax.

A major flaw is that the blueprint gives priority to the IIR, and designates the UTPR only as a secondary back-up rule. The only explanation given for this is that it is 'largely driven by simplicity and lower compliance costs' (OECD, 2020b, p. 17). This is unprincipled and unfair. The source country has the rightful claim to tax such low-taxed income, since much of it results from payments that have directly reduced its tax base as deductions from business income. Granting priority to the IIR is a transfer of tax revenue from lower-income countries, which are generally source states, to OECD members, which are generally the home countries of MNEs. The decision to make the IIR the main rule reflects the viewpoint of OECD countries that priority should be given to taxation by residence countries rather than at source.

As a partial acknowledgement that this may be considered unjust, the Pillar Two blueprint also provides for a subject to tax rule (STTR) to protect the source country tax base, but this adds further complexity. It would require an amendment to all relevant tax treaties, particularly those with countries which have established themselves as conduits or investment hubs. It is hard to see why such jurisdictions would join this scheme. Treaty changes would also be needed to introduce a fourth provision, a switch-over rule (SOR). The likelihood is that a group of willing countries would proceed with the flawed GLOBE, leaving the additional components to be added as and when treaty changes can be effected.

In summary, instead of designing minimum tax measures that any willing state could implement, the blueprint proposes a highly complex set of interacting rules that would give priority to the rich home countries of MNEs, with only a partial concession to host countries (the STTR), which is hard to implement and dependent on changes to all tax treaties.

3 | THE METR PROPOSAL

Our proposal builds in several respects on both of the blueprints, especially that for Pillar 2. We aim for much greater simplicity, while eliminating the evident unfairness of the proposed prioritisation of home countries' taxing rights, and also the obstacle of requiring worldwide treaty changes.

The METR starts, in common with the blueprints, by identifying the MNE based on the definition of a corporate group for financial accounting purposes (OECD, 2020b). However, we see no reason to limit the application of these measures to only the largest MNEs, though there could be a threshold for small and medium enterprises. The aim is to end the unfair competitive advantage that all MNEs generally have over purely domestic firms due to the MNEs' ability to achieve low ETRs by attributing profits to low- or zero-tax jurisdictions, by taxing them in closer alignment with their real activities in each country.

Next is to calculate the ETR for each jurisdiction: the covered taxes assigned to each jurisdiction divided by the relevant profits on which those taxes are paid.⁶ We adopt the methodology proposed in the Pillar 2 blueprint for calculating both elements (covered taxes and profits before tax). Thus, the calculation of profits starts with the profit or loss before tax of each constituent entity (CE) of the MNE group, prepared under the same accounting standard as the parent, and with adjustments that have been agreed to be necessary, appropriate, and commonly required for tax purposes (OECD, 2020b, chapter 3.3). The blueprint lays down details for identifying the 'covered taxes' (chapter 3.2) and for attributing the profits and the taxes paid in respect of those profits to jurisdictions, including a procedure for 'stateless' entities (chapter 3.4).⁷

Our methodology diverges from the blueprint in that we would next identify the undertaxed profits by jurisdiction, and calculate the share of those profits that have not economically been taxed: the non-effectively taxed profits (NETs). The aggregate of these for each MNE (MNE NETs) would be allocated under a formulaic apportionment rule (FAR). This is a test of substance, similar to the formulaic substance based carve-out proposed in the GLOBE (OECD, 2020b, chapter 4). Hence, instead of being a carve-out from profits prior to calculating the ETR, this becomes the principle for allocating the rights for each applicable country to apply taxation in respect of its share of MNE NETs – and in doing so, eliminates the need to treat home and source countries unequally through rule prioritisation. To reflect the real activities in each country our FAR uses three factors: tangible assets, employees and sales.⁸

To determine the undertaxed profits for each jurisdiction, the actual ETR is compared to the set minimum ETR. If the actual is equal or higher, then there is no undertaxed profit. If there is a deficiency, then we identify

the jurisdiction's NETs: the proportion of pre-tax profits which have effectively not been taxed (the remainder of the profit having been fully taxed at the minimum ETR). This is determined by multiplying the jurisdiction's profits before tax by the quotient of: (1) the difference between the minimum ETR and the actual ETR, divided by; (2) the minimum ETR. The resulting amount is the jurisdiction's NETs that will be combined with those for other jurisdictions to arrive at MNE NETs.

The rights to apply taxation in respect of MNE NETs will be allocated to all countries where the MNE has a taxable presence (irrespective of whether their ETRs are below, equal to, or above the minimum ETR).⁹ Countries would be free to maintain their own corporate tax rate, and to apply it to their respective shares of MNE NETs. Hence, they could apply either the minimum ETR or their own domestic tax rate, whether it is higher or lower than the minimum ETR. Thus, any country would be free to maintain a low tax rate, because the METR would ensure that it is applied only to the share of MNE profits reflecting real activities in the country. The effect is to allow countries to compete for investment by MNEs, even by offering a low corporate tax rate, but only for the location of real activities. Hence, the METR would be specifically targeted only at harmful tax competition: the offering of low tax rates for the artificial reporting of profits out of line with economic substance.

The METR is a modification of the GLOBE, dispensing with the STTR, and hence would be compatible with international tax rules. Since it is formulated as a single non-discriminatory rule, it would also be more likely to be accepted as compatible with EU law and other international obligations.¹⁰ Each country would apply taxation in respect of its appropriate share of MNE NETs: home countries by inclusion of those profits in the taxable profits of a parent company, while each host country would deny deductions or make other adjustments, particularly in relation to intra-group expenditures (OECD, 2020b, paras. 519–520, and ch. 10.4). Since countries could each apply the rule independently, there would be no need for the further rules to manage priority and coordination elaborated in the Pillar 2 blueprint, greatly simplifying the proposal.

Integrating the IIR and the UTPR into a single criterion for allocating the taxing rights would have several very important advantages. First, it would abandon the increasingly outdated and politically divisive distinction between residence and source countries. Second, applying a single rule would place all countries, as well as MNEs, on an equal footing. No discrimination would be involved either between countries or between inbound and outbound investment, which means that the rule would be less likely to be considered contrary to rules of international trade and investment, including those of the EU. Furthermore, MNEs would be taxed at the same rate as domestic companies on their profits attributable

to activities in the country, ensuring a more level playing field and compatibility with constitutional principles. Finally, it would deliver on the aim of simplicity and ease of administration, which is a strong need for all tax authorities, especially those of lower-income countries, as has been stressed by the Inclusive Framework.

4 | ECONOMIC ANALYSIS

The remaining question for the METR is its economic impact. In this section, we model the potential effects of competing proposals and provide estimates of the extent to which the tax base is redistributed, and the extent of additional taxes collectable on the available base. Our analysis aims to evaluate only the likely direct effects on revenue, we do not attempt to quantify more speculative scenarios resulting from behavioural reactions by either governments or firms.¹¹

Closer alignment of taxable profits with the real activity of MNEs has the potential to deliver substantial redistribution. The immediate, direct annual revenue gains from ending profit shifting in this way are estimated at \$100–240 billion (Johansson et al. 2017) or \$200–300 billion (Garcia-Bernardo & Jansky, 2021); while the total gain in revenues over time, including indirect gains from reducing the pressure to participate in a race to the bottom on rates, is estimated to be four to six times the size (Cobham & Janský, 2018, methodology following Crivelli et. al, 2016) – or one to one and a half trillion dollars. The consensus of research on profit shifting is that while high-income countries lose the greatest share of revenues in absolute terms, lower-income countries suffer greater losses in relation to their current tax revenues (Cobham & Janský, 2020; Garcia-Bernardo & Janský, 2021; Johannesen et al. 2020; Tax Justice Network, 2020b). Hence, greater alignment of profits and activity would likely be strongly progressive internationally.

The current blueprints are far from this, however. The Pillar 1 blueprint, according to the OECD's own analysis (OECD, 2020c), has the potential to deliver a global revenue gain of between \$5 billion and \$12 billion – or just 2 per cent–5 per cent of the OECD's assessment of the scale of losses.

The Pillar 2 proposal has clear redistributive potential, but the effects would greatly depend on the minimum rate selected. A 12.5 per cent minimum ETR has been contemplated, which could disproportionately affect lower-income countries. Such a low floor should counter the widespread provision of extremely low effective rates, leaving MNEs with a reduced incentive to shift profits from within Europe with its average CIT of 21 per cent. However, for African countries with their higher average CIT of 28 per cent, there would continue to be a larger incentive to shift profits. A higher minimum rate now seems likely, with the Biden

administration's commitment to a 21 per cent rate for the GILTI, and its announcement in May 2021 that the international minimum should be no lower than 15 per cent. Agreement on an immediate minimum of 15 per cent, rising to 20 per cent and perhaps 25 per cent, could have more powerful and, importantly, more balanced effects in reducing incentives for profit shifting across the globe.

A low minimum rate could exacerbate rather than ameliorate the extant inequalities in taxing rights – whereas a higher rate such as the 25 per cent suggested by the Independent Commission for the Reform of International Corporate Tax (ICRICT, 2019) or above might be globally progressive and reinstate the tax autonomy of governments lost due to the race to the bottom in corporate taxation. We therefore model the alternative approaches for a range of minimum tax rates, showing for each the tax revenue gains by regional and income level groups.

4.1 | Data

For the main analysis, we use the data provided in the OECD's own economic impact assessment, which has used sophisticated methodologies to combine the best available data from different sources. However, the complete database has not been made available – the data published by the OECD is aggregated by regional and income level groups. This aggregated data also has some significant limitations, and so we also provide country-level results based on alternative data.

The OECD assessment relies on four matrices – profit, turnover, tangible assets and payroll – created by the combination of, and extrapolation from, data from four sources: '(i) CbCR data (in all matrices except for payroll), (ii) Orbis data (in all four matrices), (iii) OECD Analytical AMNE data (in the turnover matrix), containing the output of foreign affiliates in 59 countries, and (iv) OECD AMNE data (in the turnover and payroll matrices)' (OECD, 2020c, p. 232).¹² While recognising the impressive work done to create the basis for such analysis, we have important concerns about a number of aspects.¹³ Eden (2020a, 2020b) addresses some of these issues in greater depth, and raises a number of additional queries.

First, the matrices use only the values for 'entities belonging to MNE sub-groups with positive profits in the jurisdiction considered' (OECD, 2020c, p. 249). However, reporting zero or negative profits is a common result of profit shifting. Excluding the assets, employees and sales of those affiliates that have shifted their profits to tax havens can heavily affect the redistribution of taxing rights.

Second, the data in the turnover matrix includes sales both to third-party and to related-party entities. Hence, it is distorted, especially for an analysis of where the real activity takes place, by the inclusion of the very

intragroup transactions that are used to manipulate the location of taxable profits under the current rules. The scale of the distortion is substantial. For example, while the unrelated-party sales of US MNEs in France amount to some \$147 billion, broadly comparable to those in the Netherlands (\$121 billion), related-party sales in France are only \$58 billion, far below those in the Netherlands (\$218 billion). In addition, this turnover matrix is used to estimate the tangible assets and payroll matrices, with the implication that these too are likely to contain an unknown degree of distortion – but one that is likely to mean that the modelling overstates the degree of real activity in jurisdictions that procure profit shifting¹⁴.

This turnover data is also used for sales revenues, which in the data are attributed to the recipient entity. Hence, they do not reflect our methodology for the METR, which would use the sourcing rules developed for Pillar 1 to attribute sales to the destination jurisdiction.

Finally, the book location of tangible assets appears to be highly distorted. Tangible assets can be used in profit shifting strategies, for example by booking the assets in a tax haven and leasing them to foreign subsidiaries, or in earnings stripping schemes. The value of tangible assets of US MNEs in Luxembourg amounts to \$223 billion, roughly the same as the combined amounts in Germany (\$78 billion), France (\$57 billion), Italy (\$27 billion), Spain (\$21 billion), Russia (\$19 billion) and Poland (\$17 billion). No obvious correction for the data is apparent. The METR would use the methodology proposed in the Pillar 2 carve-out, which is based on the 'depreciation of property', and makes clear that a lessor is not allowed to include leased-out assets, only those actively used to earn income (OECD, 2020b, para. 368).

In order to generate country-level results, we also provide alternative modelling using the country-level aggregate country by country reporting (CbCR) data published separately by the OECD (2020d), and follow the approach of Garcia-Bernardo and Janský (2021).¹⁵ This data contains the profits, employees, sales and assets of MNEs headquartered in a country, aggregated by the country of residence of the subsidiary, for example, profits attributed to entities resident in Bermuda by MNEs headquartered in India.

The main strength of the CbCR dataset is its large coverage. The CbCR data contains data on all large multinationals – those with consolidated annual group revenues above EUR 750 million – headquartered in countries which have adopted the CbCR reporting regime. This data is collected by the headquarters country, and supplied to the OECD for publication in aggregated form. The 2020 edition includes activities of multinational corporations in 195 countries. The data enables us to compare the benefits of different reforms for both high- and low-income countries individually.

For this study, we created one extra field: the share of global foreign profits controlled by companies in country *c*, which we label C_c . This is the profits made abroad by

profits, so it is hard to know what rate would be applicable. Furthermore, the data used here is particularly inappropriate for modelling formulary apportionment, since its effects depend on appropriate quantification of the apportionment factors. Data is not available for sales by destination, and the data on turnover used as a proxy under-estimates the effects of UT-FA, since it does not reallocate undertaxed profits away from low-tax countries to which sales revenues can be attributed. This is further distorted, as explained above, by the inclusion of sales to related entities.

Model 2 combines this UT-FA approach with a minimum tax rate, which we vary from zero to 35 per cent. An extra top-up tax is added to the groups to reach the minimum tax rate.

Model 3, the METR, reallocates undertaxed profits (MNE NETs) using a formulary apportionment rule. The fraction of undertaxed profits is calculated as the product of profits and the difference between the minimum tax rate and the effective tax rate, all taken as a proportion of the minimum tax rate. The taxing rights for these profits are reallocated on the same formulary basis as in the unitary approaches, and we assume that each country applies its standard rate to them.

Model 4 is the GLOBE proposal, specifically, the economic impact assessment for pillar II, scenario 1 (OECD, 2020c, p. 82).¹⁷ The top-up tax is calculated as the product of undertaxed profits and the difference between the minimum tax rate and the effective tax rate. A fraction of this tax is redistributed to the ultimate parent. This fraction corresponds to the minimum tax rate minus the rate of tax on the parent, divided by the minimum tax rate. The rest, that is, 1-fraction, is reallocated using the share of turnover.¹⁸ (There is no redistribution to intermediate parents, since we cannot identify them.)

In addition to assumptions related to data discussed in the previous section, there are additional assumptions that we are making explicit in the formulae below. These formulae simplify reality, for example, in that they do not allow for losses, whereas in reality a substantial share of companies do have losses rather than profits.

Under the status quo, T_{ic} is corporate income tax paid by company i in country c defined as:

$$T_{ic}(\text{status quo}) = \pi_{ic} \tau_{ic},$$

where π_{ic} denotes the pre-tax profits declared by company i in country region c , and τ_{ic} is the effective tax rate of company i in country c (or applicable statutory tax rate).

For unitary taxation with formulary apportionment (UT-FA), model 1, we define:

$$T_{ic}(\text{unitary taxation}) = E_{ic} \sum_{i,c} \pi_{ic} \cdot \tau'_{ic},$$

where τ'_{ic} is the statutory tax rate (model 1a) or the effective tax rate (model 1b) in the country c , and E_{ic} is the share of economic activity defined as:

$$E_{ic} = \frac{1}{3} \cdot \frac{A}{\sum A_{ic}} + \frac{1}{3} \cdot \frac{S_{ic}}{\sum S_{ic}} + \frac{1}{3} \cdot \frac{P_{ic}}{\sum P_{ic}},$$

where A is tangible assets, S is turnover or sales, and P is payroll costs.

For UT-FA with a minimum tax rate, model 2, we define:

$$T_{ic}(\text{unitary taxation with minimum tax rate}) = E_{ic} \sum_{i,c} \pi_{ic} \cdot \tau'_{ic} + TU_{ic}$$

where τ'_{ic} is the statutory tax rate and TU_{ic} is a top-up to the minimum tax rate, τ_m , defined as:

$$TU_{ic} = E_{ic} \sum_{i,c} \pi_{ic} (\tau'_{ic} - \tau_m).$$

This model can be considered as a maximum range, that is. what would happen if all the profits were fairly apportioned and all the profits were fairly taxed.

For model 3, the METR, we define:

$$T_{ic}(\text{METR}) = \pi_{ic} \tau_{ic} + \pi_{ic}^R \tau_{ic},$$

where π_{ic}^R corresponds to the reallocation of taxing rights to country c . This is the product of the share of real activity in the country (E_{ic}) and the sum of undertaxed profits. The sum of undertaxed profits for company i is the sum of the profits of all subsidiaries i' resident of country d , multiplied by the share of undertaxed profits of entity i' in country d , $\frac{(\tau_m - \tau_{i'd})}{\tau_m}$. This sum is only taken for countries whose effective tax rate is below the minimum tax rate ($\tau_{i'd} < \tau_m$).

$$\pi_{ic}^R = E_{ic} \sum_{i' \text{ of group } i, d: \tau_{i'd} < \tau_m} \pi_{i'd} \frac{(\tau_m - \tau_{i'd})}{\tau_m}.$$

Our model 4 is the OECD proposal (pillar 2 scenario 1), for which we simplify the tax paid by company i in a country c :

$$T_{ic}(\text{OECD proposal, pillar II scenario 1}) = \pi_{ic} \tau_{ic} + TU_{ic},$$

where the top-up tax, TU_{ic} , is obtained from two sources. Part is obtained from the top-up of the subsidiaries facing tax rates below the minimum tax rate. This top-up tax rate is only fully reallocated to country c if the tax rate of country c is above the minimum tax rate. Otherwise, a fraction equal to $\frac{(\tau_m - \tau_{ic})}{\tau_m}$ is reallocated to country c , while

the rest is reallocated based on the location of turnover (this is a simplification of the income inclusion rule and the undertaxed payments rule).

If $\tau_{ic} > \tau_m$, the TU_{ic} top-up tax of subsidiary i' in country d is collected by country c :

$$TU_{ic} = \sum_{i \text{ owns } i', d: \tau_{id} < \tau_m} \pi_{i'd} (\tau_m - \tau_{i'd}).$$

Otherwise, part of it is distributed as a function of sales, $\frac{S_{ic}}{\sum S_{ic}}$:

$$TU_{ic} = \sum_{i \text{ owns } i', d: \tau_{id} < \tau_m} \frac{(\tau_m - \tau_{ic})}{\tau_m} \pi_{i'd} (\tau_m - \tau_{i'd}) + \sum_{i \text{ owns } i', d: \tau_{id} < \tau_m} \frac{S_{ic}}{\sum S_{ic}} \frac{\tau_{ic}}{\tau_m} \pi_{i'd} (\tau_m - \tau_{i'd}).$$

Since the available data is aggregated at the region-income group level, we use the average effective tax rate and average statutory tax rates, weighted by the location of employees, for our calculations.

4.3 | Core results

The approach outlined provides us with at least a comparative evaluation of the extent to which each of the modelled alternatives delivers additional revenues at the global level, and for each of three main groupings. These are, of course, only estimates, and subject to major caveats about data quality.¹⁹

The three approaches based on unitary taxation with formulary apportionment (UT-FA) provide the main framing points for the results. As reflected in Figure 2, the UT-FA approaches with no minimum tax element, models 1a and 1b, show the effect purely of ending the opportunity to shift mobile profits, and with no projection of further changes due to the effects of a minimum ETR. In model 1a, the apportioned profits are taxed at the prevailing statutory corporate income tax rates, typically two to three times higher than current effective rates. These effects combine to generate an estimate of some

\$847 billion of revenue gain worldwide, which is clearly exaggerated since many statutory rates are very high.

In model 1b, where apportioned profits are taxed at current effective tax rates, the revenue gains are much lower, and likely to be reasonably accurate: some \$96 billion. The regional aggregation appears to have a powerful effect in distorting downwards the apparent gains.²⁰ Nonetheless, within the confines of the regional data, model 1b provides a low bar for the revenue gains that would stem from apportioning profits to the location of real economic activity, if taxed at the same effective rate as currently declared profits.

As expected, the combination in model 2 of UT-FA with a globally agreed minimum rate, indicated by the

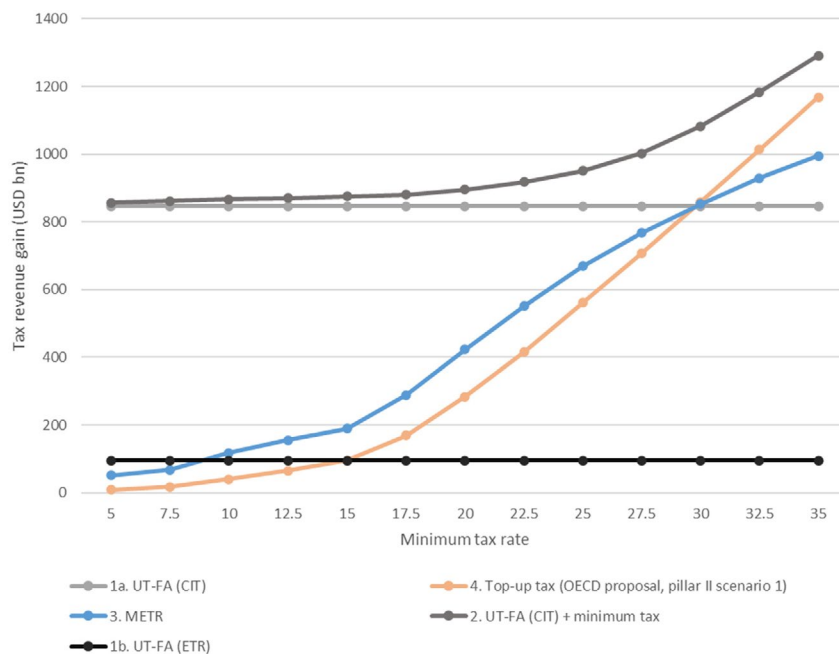


FIGURE 2 Global revenue gain from alternative proposals, for a range of minimum tax rates

horizontal axis, provides the most powerful revenue gains (ignoring any possible dynamic effects), exceeding a trillion dollars globally for the higher minimum rates. The scale of revenue gain diverges gradually upwards from model 1a, as the projected minimum tax rates increasingly exceed current CIT rates.

This maximal approach of UT-FA with a minimum ETR addresses most comprehensively both the divorce of profits from the location of real activity, *and* the incentive to do so. While we do not expect wide political support for such a complete approach at this time, it is useful to include here because it provides a baseline against which to assess the ambition of the other proposals, including importantly those in the blueprints and the METR.

The revenue gains from the residence-priority tax proposal (model 4, the GLOBE) and our METR proposal (model 3), exhibit substantial commonalities. First, they generally deliver revenue gains that fall between the unitary approaches with effective tax rates and with statutory rates (models 1a and 1b). However, the gains from the residence-priority taxes do not exceed those from the simple unitary approach with current effective tax rates (model 1b) at effective rates below 15 per cent, while the METR does so above 10 per cent. Second, only at the highest minimum rates (above 30 per cent) do the METR and the GLOBE deliver higher revenue gains than the unitary tax approach with statutory rates (model 1a). Lastly, for all the rates we model, the returns to UT-FA with a minimum tax rate remain the highest.

The major difference between the METR and the GLOBE, at this level of analysis, is that the METR generates superior revenues at all levels of minimum tax rate up to 30 per cent, ranging from \$50 billion to \$140 billion additional revenue gains. If full UT-FA is considered currently to be off the political agenda, then the METR and the GLOBE can be considered to provide options between the lower and upper bounds of the various UT-FA approaches. The differences depend on the minimum tax rates, which determine the overall extent of revenue gains; and on the distributional consequences of each, which we explore next.

The relative distribution between country groups reveals more about the potential benefits of the different approaches. Figure 3's three panels show the projected revenue gains for high-income countries; low- and middle-income countries; and investment hubs, respectively.

For high-income countries, the pattern is similar to the global picture. The METR proposal delivers a somewhat larger gain than the GLOBE until the minimum rate reaches 30 per cent, since reallocating taxing rights over undertaxed profits to be taxed at the statutory tax rate is more beneficial than allocating top-up tax at the minimum tax rate by residence priority.

The picture for low- and middle-income countries (on average) is, unsurprisingly, quite different – but

with some important similarities. The second panel of Figure 3 shows that at lower minimum tax rates, as for high-income countries, the METR proposal outperforms the GLOBE in terms of revenue-raising. In the case of lower-income countries, the pattern holds until a minimum rate of 32.5 per cent is passed.

An important difference is that UT-FA with current effective tax rates – model 1b, the lower bound for the global analysis – generates higher additional revenues for low- and middle-income countries on average, up to rather high levels of minimum tax rates. The METR generates higher revenues only above a minimum tax rate of 17.5 per cent; and the GLOBE only above 22.5 per cent.

For the jurisdictions defined by the OECD as investment hubs, the UT-FA approaches end the main attraction of corporate tax havenry. The GLOBE sees large proportional gains in revenue, albeit from a low base, at higher rates of minimum tax, since (part of) the top-up tax is redistributed to the owners. On these calculations, both the METR and the OECD proposal deliver a revenue gain even to the investment hubs, at any minimum tax rate.²¹ However, the METR provides investment hubs with proportionally somewhat smaller gains than those of both lower- and high-income countries, although these could increase over time if they rebalance their tax systems to encourage investment in real economic activities. In practice, the gains to investment hubs would be even lower under the METR, since it would allocate undertaxed income using the Pillar 1 sourcing rules for sales, while at present 'turnover' revenue is attributed to the recipient, which will frequently be in a haven. The GLOBE residence-priority tax option delivers larger gains to investment hubs than to lower-income countries, and increasingly so at higher minimum tax rates.

The overall picture is, perhaps inevitably, complex. On the one hand, the two UT-FA approaches deliver the clearest allocation of tax base to the locations of MNEs' real economic activity; while the UT-FA approach with a minimum tax rate would generate major revenue gains for all country groups, by imposing both alignment and effective taxation. This is a world in which all the profits of multinational companies are taxed according to the location of their real economic activity, applying rates at or exceeding an internationally agreed minimum rate; and in which only investment hubs could lose, while the gains for low- and middle-income countries are particularly large proportionally. Continued and deeper exploration of opportunities to introduce unitary taxation is certainly warranted.

At the current moment the METR and OECD proposals appear more feasible; and the METR results set it apart. It provides the strongest revenue gains at minimum tax rates of 25 per cent or below for both high- and lower-income countries (this holds true up to

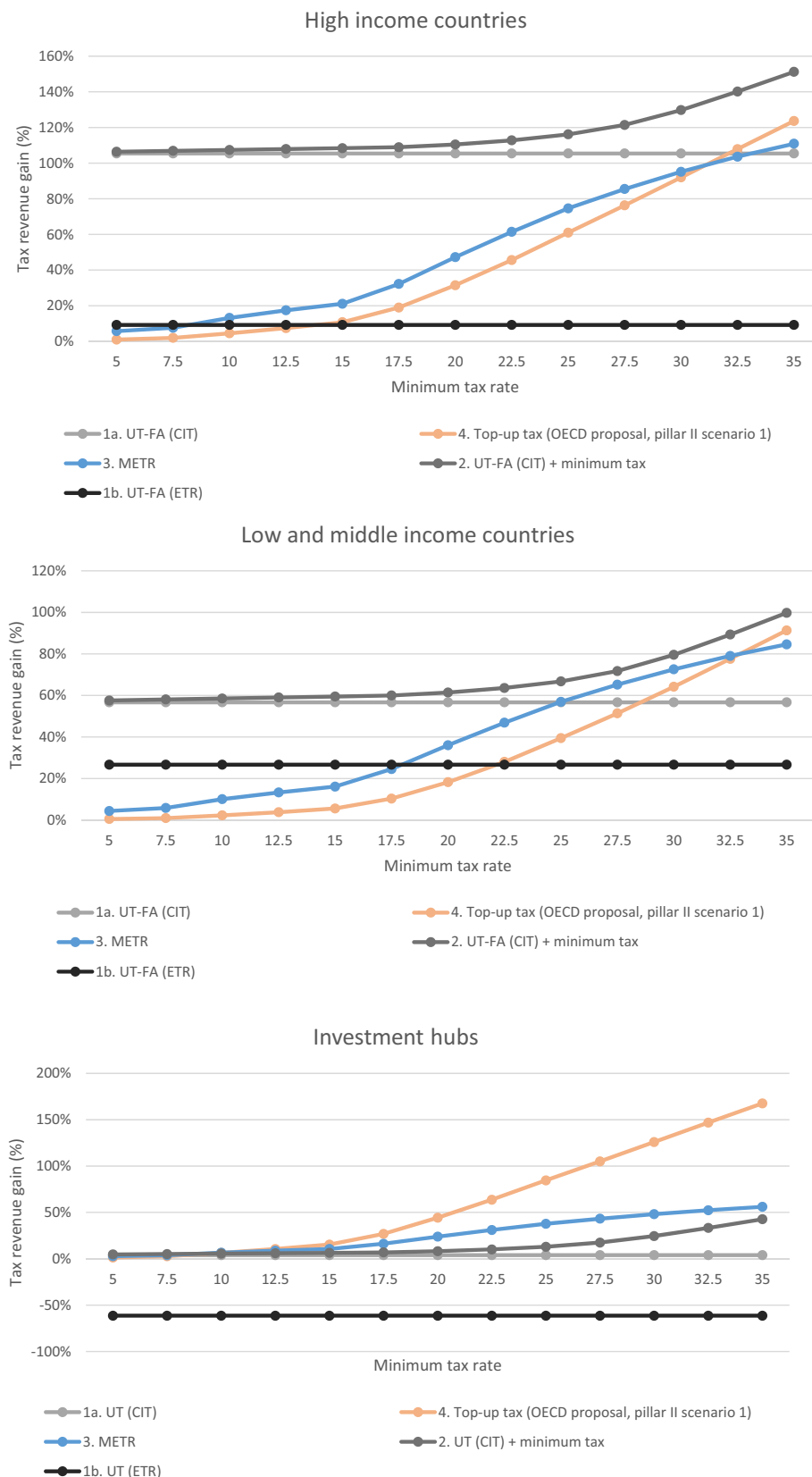


FIGURE 3 Projections for country groups

rates of 30 per cent for the former); it generates the smallest gains for investment hubs. The fairer reallocation of taxing rights in the METR proposal is especially

important if profit shifting is not completely eliminated by the minimum tax rate, that is, if the minimum tax rate is not high enough.

4.4 | Country results: METR vs OECD

With the alternative, more granular dataset, we can model the METR and OECD (2020b) proposals at country level.²² For the METR, we define the tax gains of country c , T_c as:

$$T_c(\text{METR}) = \pi_c \tau_c + \pi_c^R \tau'_c,$$

where π_c are the profits booked in country c , τ_c is the effective tax rate in country c , π_c^R corresponds to the reallocation of taxing rights to country c , and τ'_c is the statutory tax rate in country c .

For the OECD proposal (pillar II scenario 1), we define the tax gains of country c as:

$$T_c(\text{OECD proposal, pillar II scenario 1}) = \pi_c \tau_c + TU_c,$$

where the top-up tax, TU_c , is obtained from two sources. Part is obtained from the top-up of the subsidiaries facing tax rates below the minimum tax rate. This top-up tax rate is only fully reallocated to country c if the tax rate of country l is above the minimum tax rate. Otherwise, a fraction equal to $\frac{\tau_c}{\tau_m}$ is reallocated to country l , while the rest is reallocated based on the location of real economic activity (E_c)—this is a simplification of the income inclusion rule and the undertaxed payments rule:

$$TU_c = \frac{\tau_c}{\tau_m} \frac{C_c}{\sum C_d: \tau_d < \tau_m} \sum \pi_d (\tau_m - \tau_d) + \frac{E_c}{\sum E_e: \tau_e < \tau_m} \left(\frac{(\tau_m - \tau_e)}{\tau_m} \frac{C_e}{\sum C_d: \tau_d < \tau_m} \sum \pi_d (\tau_m - \tau_d) \right).$$

The reallocation of taxing rights to country c , π_c^R , is the product of the share of real activity in the country (E_c) and the sum of undertaxed profits:

$$\pi_c^R = E_c \sum_{d: \tau_d < \tau_m} \pi_d \frac{(\tau_m - \tau_d)}{\tau_m}.$$

As Figure 4 shows, the METR proposal provides higher and more balanced tax revenue gains compared with the OECD proposal, even when our modelling choices for the OECD proposal overestimate its tax revenue gains. For tax rates up to 25 per cent, the METR proposal provides higher tax revenue gains compared with the OECD proposal; this is

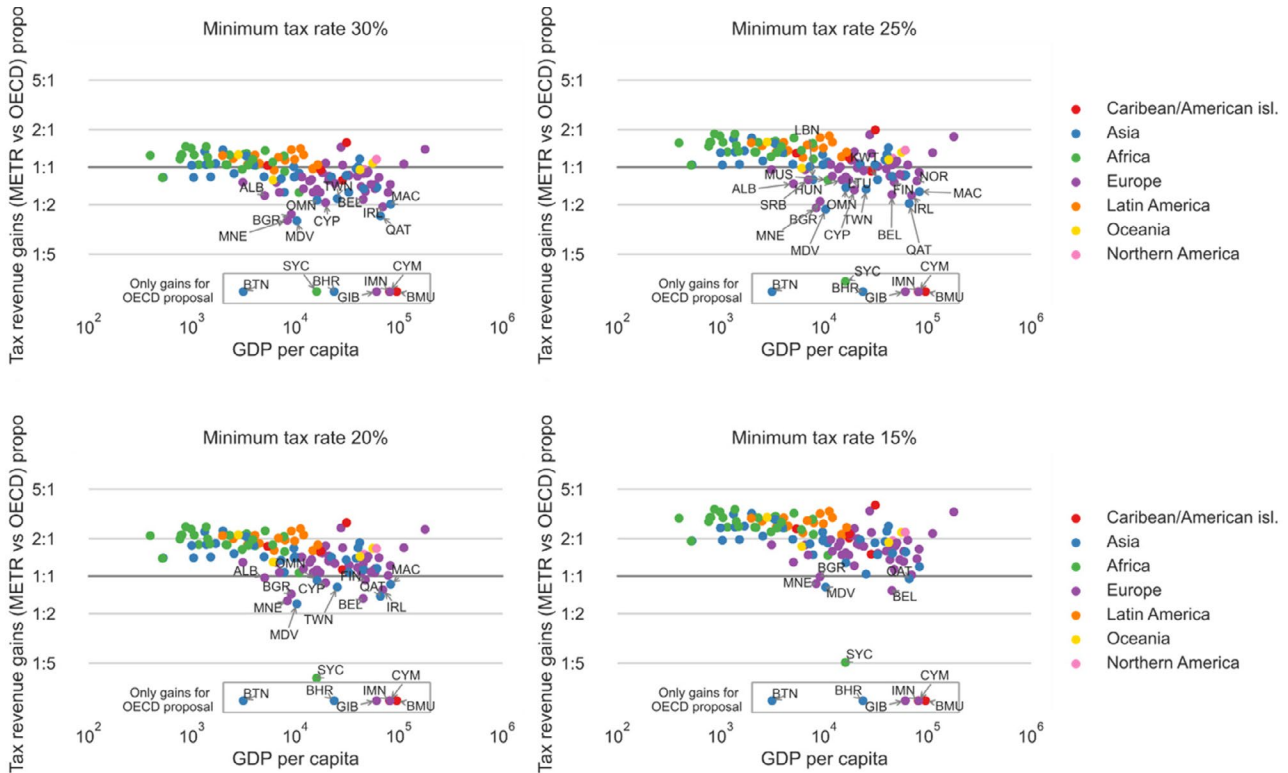
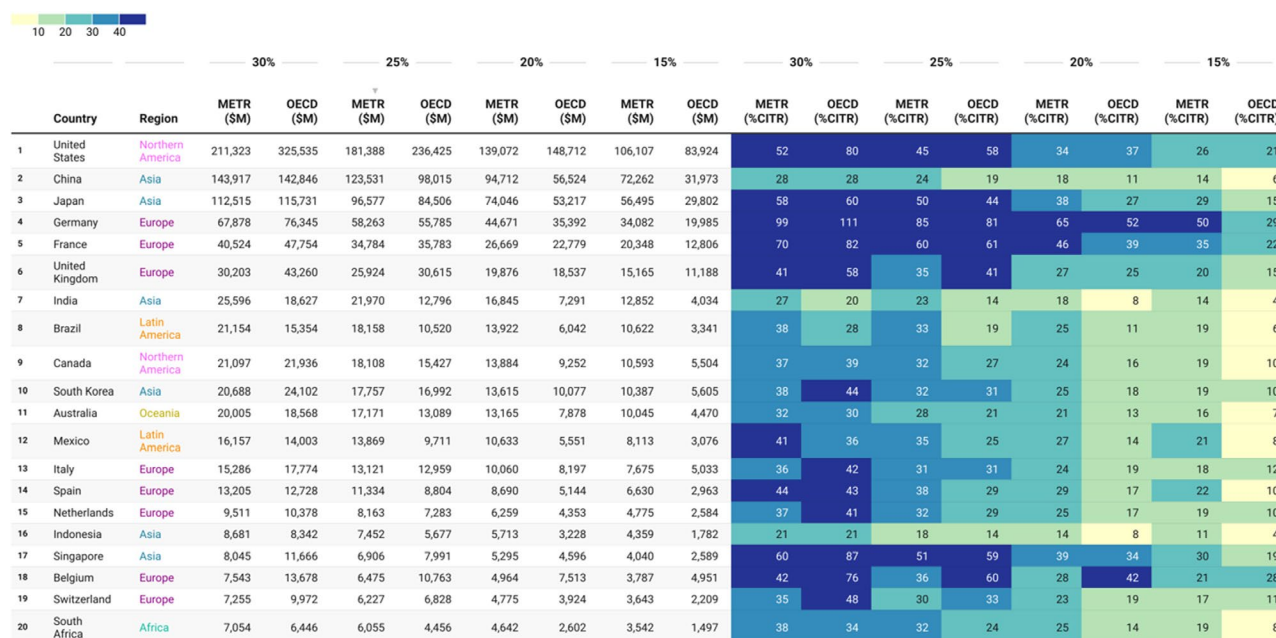


FIGURE 4 Comparison of tax revenue gains of the METR and OECD proposals, as a function of GDP per capita and the minimum tax rate

TABLE 2 Comparison of tax revenue gains of the METR and OECD proposals for a 25 per cent minimum rate

GDP per capita	Number	METR (US\$ bn)	OECD (US\$ bn)	Percentage difference between METR and OECD
<1,000	11	0.6	0.4	60.1
1,000–3,000	18	31	19.6	57.7
3,000–10,000	37	187.2	143.4	30.5
10,000–40,000	39	205.2	190.0	8.0
>40,000	31	360.0	429.4	–16.2
Totals	136	784.0	782.8	

**FIGURE 5** Country-level estimates of tax revenue gains of the METR and OECD proposals. Tax revenue gains for different values of the minimum tax rate (30 per cent, 25 per cent, 20 per cent, 15 per cent). In USD million (\$M) and as a share of corporate income tax revenue in the country (%CITR). A complete version for 136 countries is available at online (at <https://datawrapper.dwcdn.net/2BhFm/4/>).

generally also the case for a minimum tax rate of 30 per cent.

Even more strikingly, the METR proposal provides higher tax revenues gain for countries with lower GDP per capita, for all tax rates modelled. This is a direct consequence of the METR proposal reallocating gains based on the share of real economic activity, and not based on the priority the OECD blueprint gives to the location of the MNE parent (or subparent). Jurisdictions with zero statutory tax rates would not obtain any tax revenue gains from the METR proposal. These jurisdictions may receive some of the reallocated top-up tax under the OECD proposal, depending on the actual implementation of the legislation.

With a minimum tax rate of 20 per cent, the METR would yield proportionately similar tax revenue gains for the United States (US\$139bn vs 148bn), and the United Kingdom (20bn vs 19bn), but significantly higher gains for Brazil (14bn vs 6bn), Mexico (11bn vs 6bn), South

Africa (4.6bn vs 2.6bn), Argentina (2.7bn vs 1.1bn), and Malaysia (2.7bn vs 1.9bn). Similarly, with a tax rate of 25 per cent, the METR proposal yields much higher gains compared with the OECD proposals for countries with a GDP per capita below 1,000 (60 per cent increase, from 4.8bn to 7.7bn), with a GDP per capita between 1,000 and 3,000 (58 per cent increase, from 13.1bn to 20.7bn), between 3,000 and 10,000 (31 per cent, from 17.7bn to 25.7bn) and between 10,000 and 40,000 (8 per cent, from 32.8bn to 35.4bn).²³ Only countries with the highest GDP per capita would be losers (Table 2).

5 | CONCLUSIONS

The revision of the design of the GLOBE proposed by the METR would offer key advantages that could unblock remaining obstacles to progress on international corporate tax reform. It would:

- resolve the key problem with the GLOBE by eliminating the need for priority rules;
- greatly simplify the proposal, making it easier to apply;
- be capable of rapid implementation by all willing countries, using a common methodology, without any tax treaty changes;
- allow states to apply their own tax rules and rates, without discrimination between national and multinational enterprises, or between inbound and outbound investment;
- result in greater as well as more fairly distributed revenue gains than the GLOBE; and
- point the way forward to more effective comprehensive reforms.

This would of course still not be a complete solution. In particular, changes would be needed to tax treaties to ensure a taxable nexus for significant economic presence, and to allow a switch-over rule. In our view, however, progress on ensuring a minimum effective tax rate should not be dependent on securing signature and ratification by all states of a multilateral treaty, as is necessary for the current Pillar 2 proposal. This would in practice give all states a veto on implementation, which would be fatal.

The METR provides a practical and pragmatic basis for a feasible consensus of willing states to create a critical mass for progress towards effective reforms – while offering the prospect of immediate, substantial increases in revenues with a progressive global distribution (Figure 5).

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in a repository at <http://osf.io/>.

ORCID

Alex Cobham  <https://orcid.org/0000-0002-7242-4115>

Tommaso Faccio  <https://orcid.org/0000-0002-5801-1509>

Javier Garcia-Bernardo  <https://orcid.org/0000-0002-6119-1790>

Petr Janský  <https://orcid.org/0000-0001-6499-9923>

ENDNOTES

1. We use this term because it is widely accepted, although in several ways unsatisfactory, and because others (e.g. 'the global South') also have their limitations.
2. The existing rules would continue to apply to all MNEs out of scope of Pillar 1, and also for allocating the income of those in scope except for Amount A. For a careful analysis of the considerable uncertainties and major flaws remaining in the OECD Transfer Pricing Guidelines after the BEPS project, see Andrus and Collier 2017.
3. A leaked presentation by the lead US negotiator outlined proposals derived from an article he had published prior to his appointment to the US administration (Grinberg 2020).
4. The tax base would be defined simply by applying the MNE's global profit margin to its local sales revenues, and the size threshold for MNEs in scope reduced to €250m (ATAF 2021).
5. The IIR is based on the same principles as measures on controlled foreign corporations (CFCs), which were first introduced by the US in 1962, and subsequently in various formats by other states. However, states applying CFC rules normally grant a unilateral credit for foreign income taxes paid, thus allowing prior rights to source taxation, whereas Pillar 2 would give priority to home countries.
6. Described in the blueprint as 'adjusted covered taxes / adjusted GLOBE income' (OECD 2020b, p. 99). The blueprint provides detailed technical rules for defining these factors and assigning them by jurisdiction. Determining the ETR on a jurisdictional basis, as proposed in the blueprint, is far superior to the global blending adopted for the GILTI (which the Biden proposals intend to reform), though it may still permit some avoidance due to aggregation of profits/losses of affiliates in the same jurisdiction.
7. These technical details could of course be further refined. Ideally, the ETR itself should be calculated for each CE, to reduce the opportunity for sheltering profits by merging profits subject to different tax rates, and allowing losses to offset profits of CEs in the same jurisdiction. However, the jurisdictional level blending that has been agreed is acceptable, and has some advantages for tracking compliance, particularly if the CbCR standard could be aligned with the reporting requirements for the METR. However, it is important that all the information required for administration of this proposed minimum tax should be supplied. At present CbCRs are not designed or indeed permitted to be used for tax purposes, even though paradoxically they are available only to tax authorities. Countries adopting the METR would need to enact appropriate information requirements, which could be coordinated among them, and this could also be reflected in either a revised CbCR or in the transfer pricing Master File also agreed in BEPS Action 13.
8. Apportionment factors are discussed in more detail in Cobham et al. (2021), including the methodologies (already largely developed in the blueprints) for ensuring that they are location-specific, and their likely effects on corporate investment decisions.
9. To ensure that all MNE NETs are allocated to countries able to tax them, any sales revenues, employees or assets located in countries in which the MNE does not have a taxable presence would be omitted from the denominator of the allocation formula (throw-back rule). We hope, of course, that countries will be able as soon as possible to introduce a suitable taxable presence criterion for significant economic presence. Another possibility is to enact a requirement that any foreign company wishing to do business in the country must do so through a locally incorporated subsidiary, as for example in Nigeria's Companies and Allied Matters Act, s.54, though such measures may be challenged under market access obligations in investment agreements.
10. Some countries may need to change their domestic laws to introduce a switch-over rule (SOR), and in some cases this might entail changes to tax treaties. Note that existing CFC rules could co-exist with the METR, since tax on CFC profits is taken into account when calculating the undertaxed profits. Accordingly, no double-taxation results from the application of both the METR and CFC taxation. The same applies to other 'cross-jurisdictional' taxes, such as withholding taxes.
11. The OECD impact assessment includes some evaluation of the dynamic effects of the GLOBE. For the METR, apportionment based on factors that are location-specific (employees, physical assets, place of delivery for sales) means that countries would compete to attract these real activities instead of paper profits; using a combination of production and consumption factors (as argued by the G24) would balance countries' interest in attracting investment with their need for revenues. These issues are beyond the scope of this paper, but are discussed in Cobham et al. (2021).

12. AMNE stands for Activity of Multinational Enterprises, see the Analytical AMNE database (OECD, 2020d).
13. However, this is a poor substitute for the failure to require that country by country reporting be delivered to a more robust technical standard and made public. In particular, investors with trillions of dollars in assets have joined near unanimously with international experts and civil society activists this year in calling for two key changes to the OECD standard for country by country reporting: that the company-level data be made public, and that the standard be aligned with the technically robust Global Reporting Initiative standard: <https://www.taxjustice.net/2020/03/19/investors-demand-oecd-tax-transparency/>.
14. To partially avoid this, the OECD caps turnover at 100 per cent of GDP (footnote 24 of Chapter 3 of the economic analysis) before using it as a proxy measure for the allocation. This is however an extremely high ratio.
15. The dataset is also limited in several ways. Only 26 out of the approximately 100 countries that implemented the CbCR regulation agreed to share their data publicly. Of those, only 10 jurisdictions disaggregated the data to more than 60 countries. For instance, the Netherlands only provided disaggregate data by domestic and foreign operations. In order to create a representative sample, we impute missing profits, employees, sales and assets using histogram-based gradient boosting regression – a type of machine learning algorithm offering high performance and interpretability. The aggregated total profits, sales and assets are comparable to those imputed by the OECD's Economic Analysis and Impact Assessment using a linear model (OECD, 2020).
16. Other 'residence-priority' taxes include the approach proposed by Clausing et al. (2020). Here, we focus on the OECD proposal since the aggregated results are similar; although note that the Clausing–Saez–Zucman proposal would give priority to source country taxes, to the extent that they are allowable for tax credit by the residence country.
17. We do not model a formulaic substance-based carve out, but the OECD assessment (OECD 2020c) suggests that this has only a small effect on the total value of tax gains. For simplicity, we assume that the US takes part in the proposal whereas the OECD excludes the US from their analysis and adds the expected tax revenue from GILTI.
18. We do not model second-order effects, as it would extend the length and scope of this paper to discuss them. In case of model 4, our modelling might overestimate the share of undertaxed profits taxed by the ultimate parent countries that are both home and host to MNEs, like the UK and US, as the estimated effects might cancel out to a significant extent. For countries that are mainly or only hosts, as are the lower-income countries, the effects would vary greatly and are highly unpredictable. Factors involved include the type of tax incentives offered and what the country does with them, the effects on inward investment, whether the country accepts priority for the IIR or introduces its own defensive measures.
19. These caveats include problems due to the aggregations made by the OECD. The groupings used are: low- and middle-income countries (per the World Bank classification); high-income countries (same source); and investment hubs (per the OECD classification, defined as jurisdictions with a total inward FDI position above 150 per cent of GDP). These three broad income groupings are in turn aggregations of regional groupings (OECD 2020c). It is important to note that these groupings hide some extreme heterogeneity of the countries included in a region. For example: Puerto Rico, one of the largest tax havens for US companies, is included in the same group as the United States (Americas – High income). As a result, all the profit shifting from the United States to Puerto Rico, estimated at around \$40bn–\$60bn, is completely disregarded. Moreover, a country can attract profits from one specific country, while other countries shift profits away from it. An important example of this is the United Kingdom, which attracts profits shifted from the United States, but sees profits from MNEs of other countries shifted away. Aggregating all data at the regional level also nets out profits shifted in with profits shifted out.
20. This is likely to be particularly inaccurate due to the data limitations discussed above. By comparison, the recent estimates of TJN (2020), which take a similar approach but rely on the more disaggregated country-level data published by the OECD (OECD 2020d), assess global revenue losses at \$245 billion.
21. The OECD assessment assumes that investment hubs would not implement the GLOBE, and only 50 per cent of other countries would do so. We assume that all countries would implement, since the METR would allocate some undertaxed profits to almost all countries, including investment hubs. This is because investment hubs are also conduits for profits that end up in very low or zero-tax jurisdictions. Investment hubs can be home countries, so would make some gains under the GLOBE, and they can be locations for some real activities, so the METR would reallocate to them some of the undertaxed profits.
22. There are three key differences between our model of the OECD proposal, and the model used in the Economic Analysis and Impact Assessment (OECD, 2020b). First is the way in which we estimate missing data, explained above. Second is the ETR used. The OECD uses the median of three data sources: CbCR, BEA data and data from Tørsløv et al (2020), also based on BEA data. BEA data is however biased upward, especially for low-tax jurisdictions (Garcia-Bernardo & Janský, 2020). The third is how we model the IIR. We assume all countries would implement it, while the OECD assumes 0 per cent of countries with no corporate tax would implement it, and 50 per cent of all other countries. The high number of assumptions required to model the OECD proposal results from the complexity of the details, in turn reflected in higher uncertainty of the results for this proposal.
23. The METR proposal would yield lower gains for countries with a high GDP per capita (–16%, from 43B to 36B); but note that this result would reverse if we relied instead on the assumptions from the OECD Economic Analysis and Impact Assessment.

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AUTHOR BIOGRAPHIES

Alex Cobham is an economist and chief executive of the Tax Justice Network.

Tommaso Faccio is the head of secretariat of the Independent Commission for the Reform of International Corporate Taxation and lecturer in accounting at the Nottingham University Business School in the United Kingdom.

Javier Garcia-Bernardo is a data scientist at the Tax Justice Network and CORPTAX postdoctoral researcher at Institute of Economic Studies, Faculty of Social Sciences, Charles University in Prague.

Petr Janský is associate professor of economics at Institute of Economic Studies, Faculty of Social Sciences, Charles University and principal investigator of CORPTAX.

Jeffery Kadet was in private practice for over 32 years, working in international taxation for several major accounting firms, and now teaches international tax courses at the University of Washington School of Law in Seattle.

Sol Picciotto is emeritus professor of law at Lancaster University in the United Kingdom, coordinator of the BEPS Monitoring Group, and senior fellow of the International Centre for Tax and Development.

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