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

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$$\frac{1!}{(m-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[\frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

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

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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 progress towards international agreement remains stalled. 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.

JEL: F23, H25, H32

Keywords: multinational enterprise; corporate taxation; tax reform; effective tax rate; minimum tax; minimum effective tax rate

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1. INTRODUCTION

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 exceed US\$1 trillion each year in tax losses (Tax Justice Network, 2020a, Garcia-Bernardo and Janský, 2021). 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 delivered two complex technical blueprints, which were approved by the Inclusive Framework (OECD 2020a, OECD 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 so as to place them on an equal footing with domestic firms. Such a tax could command support from a strong coalition of both developed and developing 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. There is good reason to believe that the new US administration would welcome such a proposal, since President Biden has pledged to strengthen the existing US minimum tax measures, as well as to explore improvements (Avi-Yonah and Mazzoni 2020). The increasing unilateral measures targeted only at digitalised MNEs are unsuitable and merely antagonise the US into retaliation. China also may be more open to a balanced approach than to the current proposals. A strong mechanism for a minimum

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.

effective tax rate (METR) 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:

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

Our proposal also has further key advantages:

- iv. it does not require changes to tax treaties;
- v. it allocates taxation rights fairly to all states instead of the proposed complex and inequitable 'ordering' rules;
- vi. it can be introduced by states under their own domestic laws, and
- vii. 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 explain briefly 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, OECD 2020b) contain positive elements and have resolved many key technical problems. However, the design of both is 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.

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 (OECD 2015, OECD 2018) showed cogently that digitalisation has affected the whole economy and any solution should not be ring-fenced.³

The OECD's impact assessments show that the likely benefits from Amount A would be 'modest - less than 1% of global CIT revenues' (OECD 2020c, p.61); in return, countries would be required to withdraw existing unilateral measures, particularly digital services taxes (DSTs), and to accept the locking-in of flawed transfer pricing methods. Overall, it is difficult to see why there should be widespread take-up by states, let alone the legally binding universal coverage that effective implementation would require.

² The existing rules would continue to apply to all MNEs out of scope of Pillar One, 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 Some argue that DSTs are justified as a tax on 'location-specific rent' (Cui and Hashimzade 2019); this issue is beyond the scope of this paper. Our point is that a comprehensive solution is needed for taxation of profits for all MNEs, even if more specific levies are also justified to tax rents, e.g. for extractive industries.

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 (as the unilateral introduction of DSTs has forced the pace of international reforms – but with a clearer aim).

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.⁴ 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.

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

⁴ 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 Two would give priority to home countries.

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, adding further complexity. This 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).

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, p.23). 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.⁵ We adopt the methodology proposed in the Pillar Two 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, ch. 3.3). The blueprint lays down details for identifying the 'covered taxes' (ch. 3.2) and for attributing the profits and the taxes paid in respect of those profits to jurisdictions, including a procedure for 'stateless' entities (ch. 3.4).⁶

⁵ Described in the blueprint as 'adjusted covered taxes / adjusted GloBE income' (OECD 2020b, p. 99).

⁶ 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

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.⁷

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 (i) the difference between the minimum ETR and the actual ETR, divided by (ii) 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).⁸ 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.⁹ Each country would apply taxation in respect of its appropriate share of MNE NETs: home countries by inclusion of those

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.

⁷ Apportionment factors are discussed in more detail in [our SSRN working paper].

⁸ 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.

⁹ 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.

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 Two blueprint.

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. Secondly, 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.

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 \$100-240bn (Johansson et al 2017) or \$200-300bn (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; Tax Justice Network, 2020b; Garcia-Bernardo & Janský, 2021; Johannesen et al., 2020). 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%-5% of the OECD's assessment of the scale of losses (OECD, 2015b).

The Pillar 2 proposal has clear redistributive potential, but the effects would greatly depend on the minimum rate selected. A 12.5% minimum ETR seems to be 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%. However, for African countries with their higher average CIT of 28%, there would continue to be a larger incentive to shift profits. A higher minimum rate, on the other hand, 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% 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.

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).¹⁰ While recognising the impressive work done to create the basis for such analysis, we have important concerns about a number of aspects.¹¹ 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

¹⁰ AMNE stands for Activity of Multinational Enterprises, see the Analytical AMNE database (OECD, 2020d).

¹¹ 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/>.

likely to mean that the modelling overstates the degree of real activity in jurisdictions that procure profit shifting¹².

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 One 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, and follow the approach of Garcia-Bernardo and Janský (2021).¹³ This data contains the profits, employees, sales and assets of MNEs headquartered in a country, aggregated by the country of residence of the subsidiary—e.g. 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 any country which has adopted the CBCR regulation. This data is collected by the headquarter country, aggregated at the country-level, and published by the OECD. The 2020 edition activities of multinational corporations in 195 countries. The unmatched data enables us to compare the benefits of different reforms for both high- and low-income countries.

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 subsidiaries of companies in country c . To operationalize this, we compare two options. The first is the share of outward FDI stock, from the IMF Coordinated Direct Investment Survey (CDIS) dataset. The second is a direct estimation of C_c , using a linear model combining the number of MNEs in the country (from the Bureau van Dijk/Orbis database), the level of bank deposits (from BIS, Table B4), the statutory tax rate in the country (from KMPG, Deloitte and PwC), the effective tax rate in the country (average in the OECD data), GDP and population (these independent variables are those used by Garcia-Bernardo & Janský, 2021 to estimate domestic profits).

¹² To partially avoid this, the OECD caps turnover at 100% 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.

¹³ 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 on more than 60 countries. For instance, the Netherlands only agreed to disaggregate data into 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).

The second approach provides a more accurate estimate of C_c , reducing – as Figure 4 illustrates – the weight of major conduit countries such as Luxembourg or the Netherlands, and increasing the weight of more substantive home countries such as the United States and Japan. This model is able to predict C_c for countries reporting data to the OECD with an R^2 of 88%. We therefore use this model to estimate C_c in non-reporting countries.

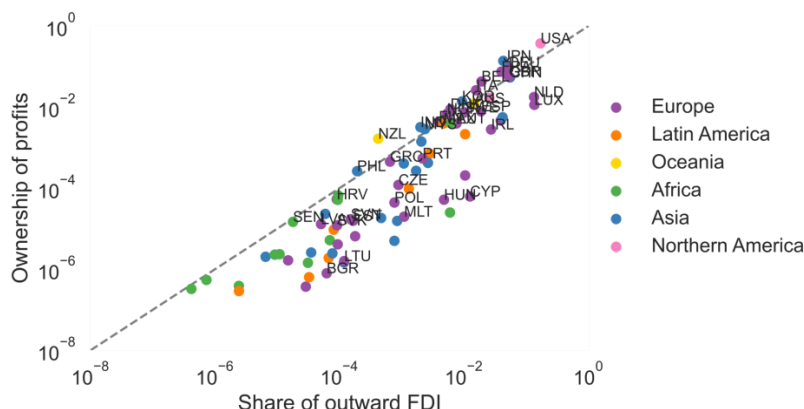


Figure 4: Two ways to estimate C_c , the share of outward FDI (x axis), and a linear model using FDI, banking deposits and tax rates (y axis).

Core modelling

We start with the tables in the OECD economic evaluation (Annex 5.D, OECD 2020c, p. 267), which aggregates the data on profits, turnover, tangible assets and payroll into the following groups:

Table 1. Groups in the Annex 5.D tables. Colours indicate the final groups used in the visualizations of this paper.

High-income countries	Low- and middle-income countries	Investment hubs
A. Americas - High income	E. Latin America & Caribbean - Middle and low income	L. Americas Investment hubs
B. Europe & Central Asia - High income	F. Europe & Central Asia - Middle and low income	M. European Investment hubs
C. East Asia & Pacific - High income	G. East Asia & Pacific - Middle and low income	N. Other Investment hubs
D. Middle East & North Africa - High income	H. Middle East & North Africa - Middle and low income	
	I. South Asia - Middle and low income	
	J. Sub-Saharan - High and middle income	
	K. Sub-Saharan - Low income	

We use the total profit, turnover, asset and payroll matrixes, and calculate the ETR by group as the average of ETRs, weighted by the payroll vector. We use the ETR based on cash payments in the CbCR data and sub-groups with positive profits. Where the effective rate was below zero, we instead use the statutory corporate income tax rate.

We compare five approaches: three variants on unitary taxation with formulary apportionment (UT-FA); our proposal, the METR; and the OECD approach which gives priority to residence countries.¹⁴

Model 1 is the straight UT-FA approach, wherein all taxing rights over the consolidated global profits of each multinational are reallocated to their countries of operation based on a formula which weights equally the shares of the multinational's turnover, payroll and tangible assets in each country. Those profits are then taxed at the statutory corporate income tax rate in model 1a, and at the effective tax rate in model 1b. This provides upper and lower bound estimates for the effects of UT-FA, since it is unclear whether apportioned profits would be taxed at the country's standard rate, or at its current effective rate. Low effective rates are due to a variety of incentives, many of which would be inappropriate to apply to apportioned 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. No data is available on sales by destination, and the data on turnover used as a proxy is further distorted, as explained above, by the inclusion of sales to related entities. This seriously under-estimates the effects of UT-FA, since it does not reallocate undertaxed profits away from low-tax countries to which sales revenues are often attributed.

Model 2 combines this UT-FA approach with a minimum tax rate, which we vary from zero to 35%. 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).¹⁵ 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—i.e., 1-fraction—is reallocated using the share of turnover. (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, e.g. 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

¹⁴ In addition to the OECD proposal, other 'residence-priority' taxes include the approaches proposed by the Biden-Harris administration (joe Biden.com, 2020) and by Clausing, Saez & Zucman (2020). Here, we focus on the OECD proposal since the aggregated results are similar. It should be noted that the dynamic distributional effects of these three variants of the 'residence-priority' taxes could differ significantly. In particular, 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.

¹⁵ We do not model a formulaic substance-based carve out, but the OECD assessment (OECD 2020c, p.94 Table 3.6) 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.

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

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— i.e. 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 II 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_i , 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.

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, subject to major caveats about data quality.¹⁶

The three approaches based on unitary taxation with formulary apportionment (UT-FA) provide the main framing points for the results. As reflected in Figure 1, 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.

In model 1b, where apportioned profits are taxed at current effective tax rates, the revenue gains are much lower: some \$96 billion. The regional aggregation appears to have a powerful effect in distorting

¹⁶ 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% of GDP). These three broad income groupings are in turn aggregations of regional groupings (OECD 2020c, p.271). 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.

downwards the apparent gains.¹⁷ 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 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.

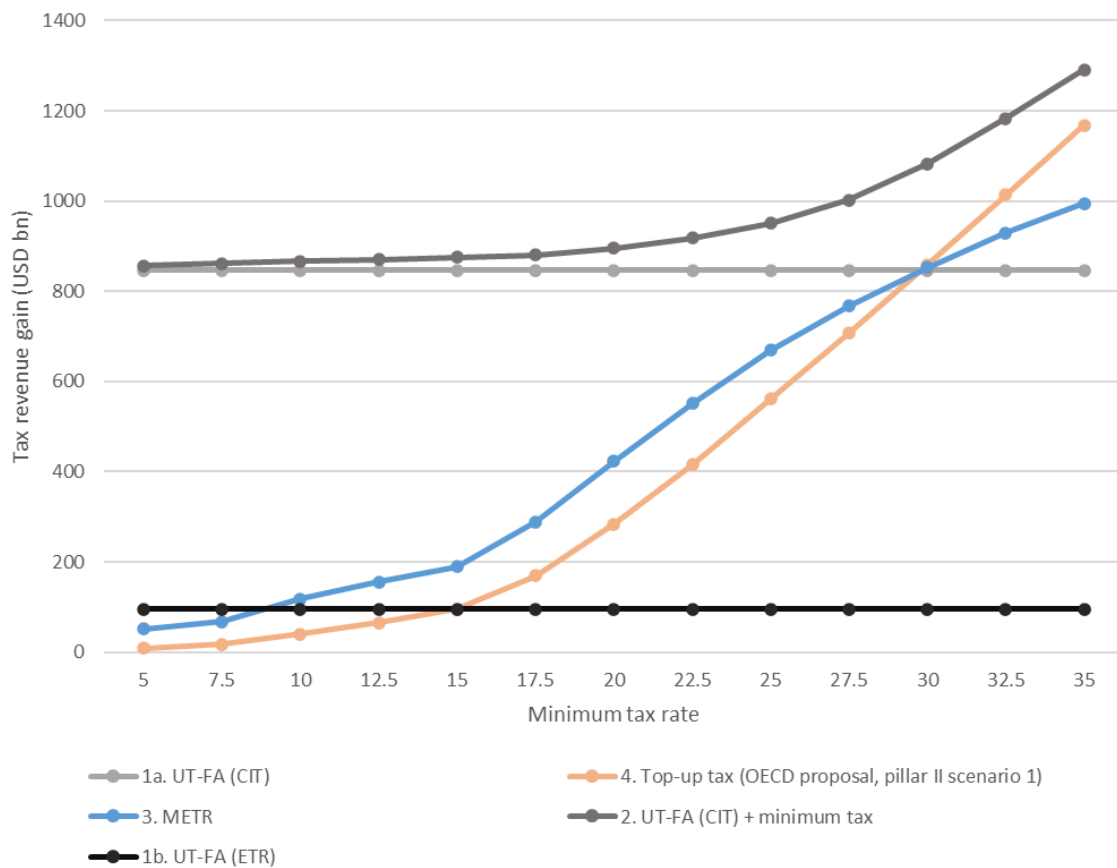
This maximal approach of UT-FA with a minimum ETR addresses most comprehensively both the divorce of profits from the location of real activity, *and* the incentive to do so. While we do not expect political support for such a complete approach at this time, it is useful to include here because it provides 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%, while the METR does so above 10%. Second, only at the highest minimum rates (above 30%) do the METR and residence-priority taxes 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 residence-priority tax proposals, at this level of analysis, is that the METR generates superior revenues at all levels of minimum tax rate up to 30%, 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 residence-priority tax proposals 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.

¹⁷ 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.

Figure 1: Global revenue gain from alternative proposals, for a range of minimum tax rates



The relative distribution between country groups reveals more about the potential benefits of the different approaches. Figure 2's three panels show the projected revenue gains for high-income countries; low- and middle-income countries; and investment hubs, respectively.

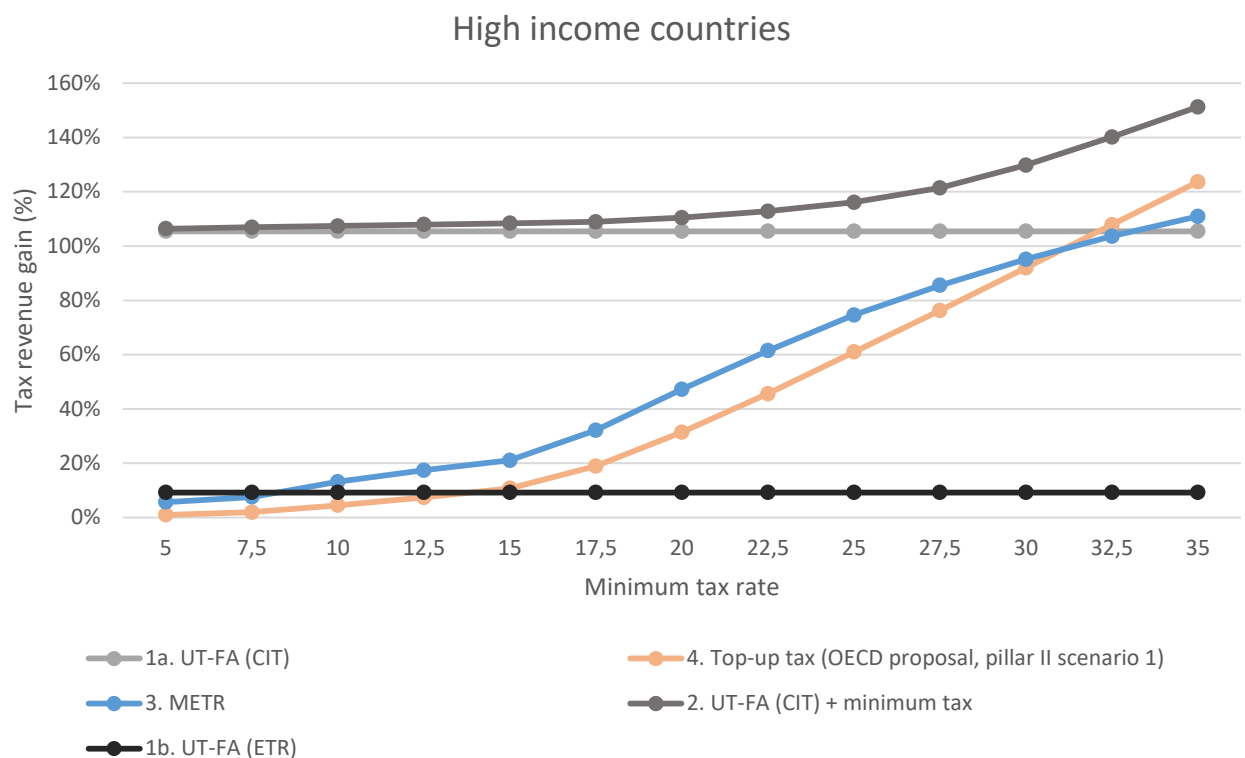
For high-income countries, the pattern is similar to the global picture. The METR proposal delivers a somewhat larger gain than the OECD proposal until the minimum rate reaches 30 per cent, since reallocating taxing rights over undertaxed profits to be taxed at the statutory tax rate is more beneficial 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 2 shows that at lower minimum tax rates, as for high-income countries, the METR proposal outperforms the OECD proposal 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.

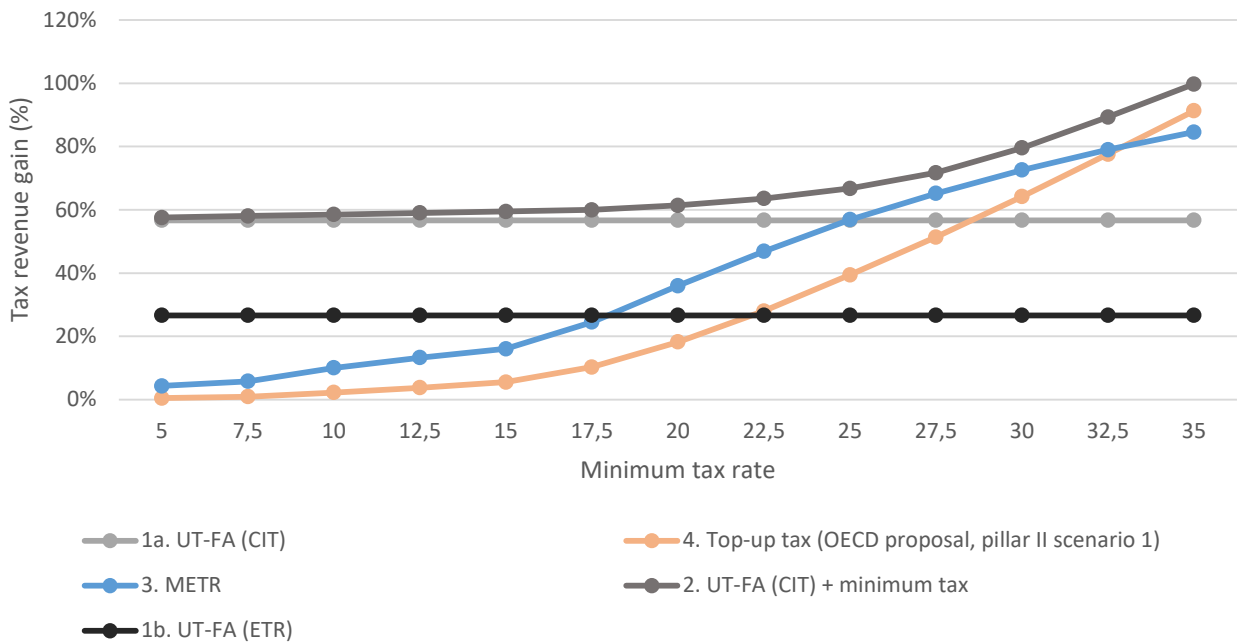
An important difference is that UT-FA with current effective tax rates – model 1b, the lower bound for the global analysis - generates higher additional revenues for low- and middle-income countries on average, up to rather high levels of minimum tax rates. The METR generates higher revenues only above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

For the jurisdictions defined by the OECD as investment hubs, the UT-FA approaches end the main attraction of corporate tax havenry. The OECD proposal see 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. 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.

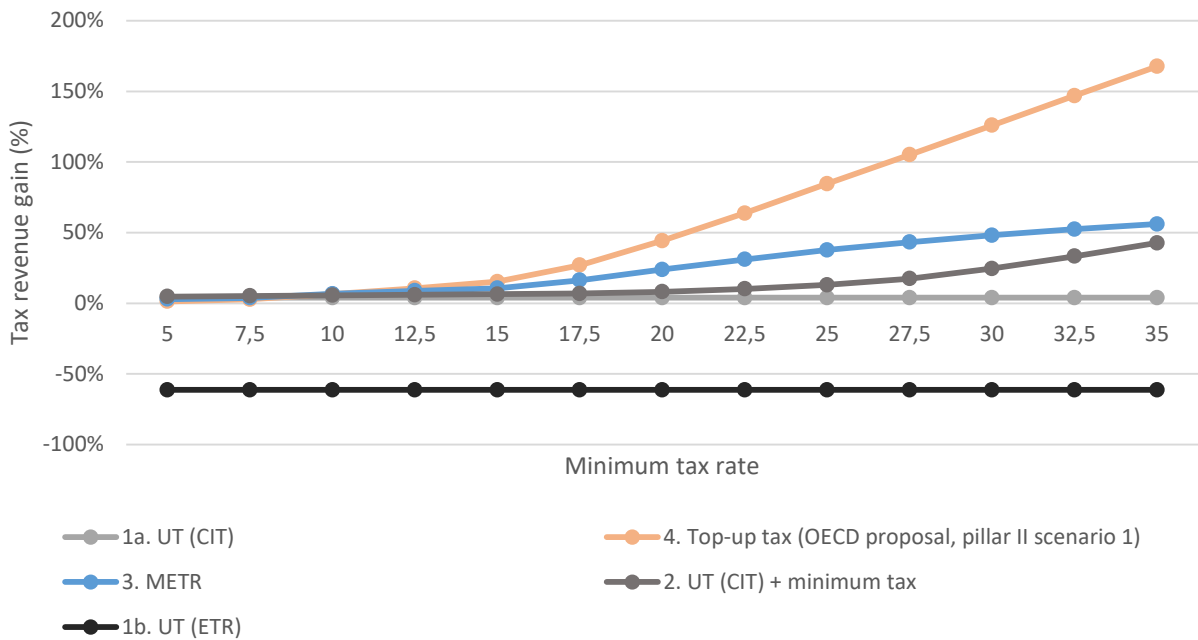
Figure 2: Projections for country groups



Low and middle income countries



Investment hubs



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 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—i.e. if the minimum tax rate is not high enough.

Country results: METR vs OECD

With the alternative, more granular dataset, we can model the METR and OECD proposals at country level.¹⁸ For the METR, we define the tax gains of country c , T_c as

$$T_c (METR) = \pi_c \tau_c + \pi_c^R \tau'_c$$

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 .

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.

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

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

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

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 c is above the minimum tax rate. Otherwise, a fraction equal to $\frac{\tau_c}{\tau_m}$ is reallocated to country c , 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.

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

As Figure 5 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

¹⁸ There are three key differences between our model of the OECD proposal, and the model used in the Economic Analysis and Impact Assessment (2020). 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 Torslov 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% of countries with no corporate tax would implement it, and 50% 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.

revenue gains. For tax rates up to 25%, the METR proposal provides higher tax revenue gains compared with the OECD proposal; this is generally also the case for a minimum tax rate of 30%.

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.

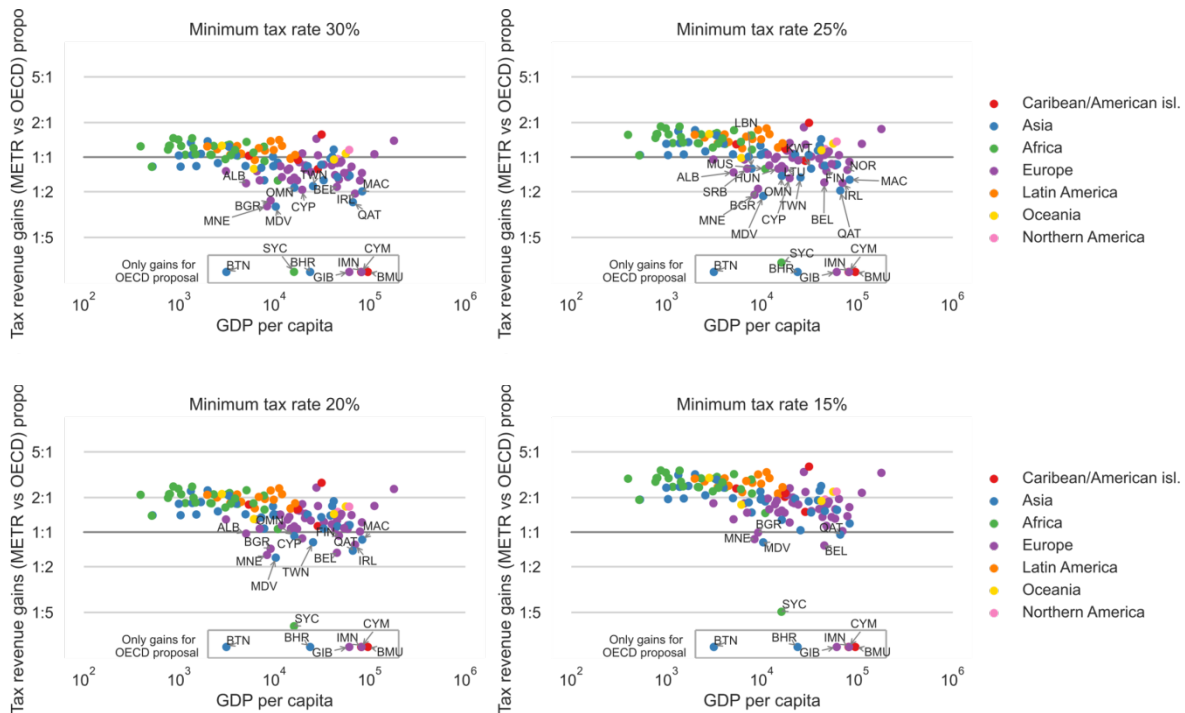
With a minimum tax rate of 20%, the METR would yield proportionately similar tax revenue gains for the United States (139 B vs 148B), and the United Kingdom (20B vs 19B), but significantly higher gains for Brazil (14B vs 6B), Mexico (11B vs 6B), South Africa (4.6B vs 2.6B), Argentina (2.7B vs 1.1B), and Malaysia (2.7B vs 1.9B). Similarly, with a tax rate of 25%, the METR proposal yields much higher gains compared with the OECD proposals for countries with a GDP per capita below 1,000 (60% increase, from 4.8B to 7.7B), with a GDP per capita between 1,000 and 3,000 (58% increase, from 13.1B to 20.7B), between 3,000 and 10,000 (31%, from 17.7B to 25.7B) and between 10,000 and 40,000 (8%, from 32.8B to 35.4B).¹⁹ Only countries with the highest GDP per capita would be losers.

Table 2. Comparison of tax revenue gains of the METR and OECD proposals for a 25% minimum rate

GDP per capita	Number	METR (USD B)	OECD (USD B)	% difference between METR and OECD
<1,000	11	7.7	4.8	60.1%
1,000-3,000	18	20.7	13.1	57.7%
3,000-10,000	37	25.7	19.7	30.5%
10,000-40,000	39	35.4	32.8	8.0%
>40,000	31	36.0	43.0	-16.2%

¹⁹ 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.

Figure 5. Comparison of tax revenue gains of the METR and OECD proposals, as a function of GDP per capita and the minimum tax rate



5. CONCLUSION

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;
- 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 6. 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%, 25%, 20%, 15%). 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

Country	Region	30%		25%		20%		15%		30%		25%		20%		15%	
		METR (\$M)	OECD (\$M)	METR (\$M)	OECD (\$M)	METR (\$M)	OECD (\$M)	METR (\$M)	OECD (\$M)	METR (%CITR)	OECD (%CITR)	METR (%CITR)	OECD (%CITR)	METR (%CITR)	OECD (%CITR)	METR (%CITR)	OECD (%CITR)
1	United States	211,323	325,535	181,388	236,425	139,072	148,712	106,107	83,924	52	80	45	58	34	37	26	21
2	China	143,917	142,846	123,531	98,015	94,712	56,524	72,262	31,973	28	28	24	19	18	11	14	6
3	Japan	112,515	115,731	96,577	84,506	74,046	53,217	56,495	29,802	58	60	50	44	38	27	29	15
4	Germany	67,878	76,345	58,263	55,785	44,671	35,392	34,082	19,985	99	111	85	81	65	52	50	29
5	France	40,524	47,754	34,784	35,783	26,669	22,779	20,348	12,806	70	82	60	61	46	39	35	22
6	United Kingdom	30,203	43,260	25,924	30,615	19,876	18,537	15,165	11,188	41	58	35	41	27	25	20	15
7	India	25,596	18,627	21,970	12,796	16,845	7,291	12,852	4,034	27	20	23	14	18	8	14	4
8	Brazil	21,154	15,354	18,158	10,520	13,922	6,042	10,622	3,341	38	28	33	19	25	11	19	6
9	Canada	21,097	21,936	18,108	15,427	13,884	9,252	10,593	5,504	37	39	32	27	24	16	19	10
10	South Korea	20,688	24,102	17,757	16,992	13,615	10,077	10,387	5,605	38	44	32	31	25	18	19	10
11	Australia	20,005	18,568	17,171	13,089	13,165	7,878	10,045	4,470	32	30	28	21	21	13	16	7
12	Mexico	16,157	14,003	13,869	9,711	10,633	5,551	8,113	3,076	41	36	35	25	27	14	21	8
13	Italy	15,286	17,774	13,121	12,959	10,060	8,197	7,675	5,033	36	42	31	31	24	19	18	12
14	Spain	13,205	12,728	11,334	8,804	8,690	5,144	6,630	2,963	44	43	38	29	29	17	22	10
15	Netherlands	9,511	10,378	8,163	7,283	6,259	4,353	4,775	2,584	37	41	32	29	25	17	19	10
16	Indonesia	8,681	8,342	7,452	5,677	5,713	3,228	4,359	1,782	21	21	18	14	14	8	11	4
17	Singapore	8,045	11,666	6,906	7,991	5,295	4,596	4,040	2,589	60	87	51	59	39	34	30	19
18	Belgium	7,543	13,678	6,475	10,763	4,964	7,513	3,787	4,951	42	76	36	60	28	42	21	28
19	Switzerland	7,255	9,972	6,227	6,828	4,775	3,924	3,643	2,209	35	48	30	33	23	19	17	11
20	South Africa	7,054	6,446	6,055	4,456	4,642	2,602	3,542	1,497	38	34	32	24	25	14	19	8

online (at <https://datawrapper.dwcdn.net/2BhFm/4/>).

REFERENCES

- Andrus J and Collier R (2017) *Transfer Pricing and the Arm's Length Principle After BEPS*. Oxford University Press.
- Avi-Yonah RS and Mazzoni G (2020) Biden's International Tax Plan. *Tax Notes International* 100(4): 525-527.
- Clausing C (2020) *Open: The Progressive case for free trade, immigration, and global capital*. Harvard University Press.
- Clausing K, Saez E and Zucman G (2020) Ending Corporate Tax Avoidance and Tax Competition: A Plan to Collect the Tax Deficit of Multinationals. <http://gabriel-zucman.eu/files/CSZ2020.pdf>
- Cobham, A., & Janský, P. (2018). Global distribution of revenue loss from corporate tax avoidance: re-estimation and country results. *Journal of International Development* 30(2), 206-232. <https://doi.org/10.1002/jid.3348>.
- Cobham, A., & Janský, P. (2019). Measuring misalignment: The location of US multinationals' economic activity versus the location of their profits. *Development Policy Review* 37(1), 91–110. <https://doi.org/10.1111/dpr.12315>.
- Cobham, A., & Janský, P. (2020). *Estimating Illicit Financial Flows: A Critical Guide to the Data, Methodologies, and Findings*. Oxford: Oxford University Press.
- Crivelli, E., De Mooij R, Keen M. 2016. Base erosion, profit shifting and lower-income countries. *FinanzArchiv: Public Finance Analysis* 72(3): 268–301. <https://doi.org/10.1628/001522116X14646834385460>.
- Cui, Wei and Hashimzade, Nigar, The Digital Services Tax as a Tax on Location-Specific Rent (January 23, 2019). Available at SSRN: <https://ssrn.com/abstract=3321393> or <http://dx.doi.org/10.2139/ssrn.3321393>
- Eden, L. (2020a). Leap of Faith: The Economic Impact Assessment of the Pillar One and Pillar Two Blueprints, *Bloomberg Tax* (16 December): <https://news.bloombergtax.com/transfer-pricing/leap-of-faith-the-economic-impact-assessment-of-the-pillar-one-and-pillar-two-blueprints?context=article-related>.
- Eden, L. (2020b). Winners and Losers: The OECD's Economic Impact Assessment of Pillar One, *Bloomberg Tax* (17 December): <https://news.bloombergtax.com/transfer-pricing/winners-and-losers-the-oecd-economic-impact-assessment-of-pillar-one>.
- Garcia-Bernardo, J., & Janský, P. (2021). Profit Shifting of Multinational Corporations Worldwide. ICTD Working Paper, 119, 1–72.
- G20 (2013) Tax Annex to St Petersburg Declaration. <https://www.oecd.org/g20/summits/saint-petersburg/Tax-Annex-St-Petersburg-G20-Leaders-Declaration.pdf>
- ICRICT (2019) ICRICT response to the OECD Consultation on Global Anti-Base Erosion Proposal (“GloBE”) - Pillar Two

Joe Biden.com (2020). The Biden-Harris Plan to Fight for Workers by Delivering on Buy America and Make It in America, <https://joe Biden.com/wp-content/uploads/2020/09/Buy-America-fact-sheet.pdf>.

Johannesen, N., Tørsløv, T., & Wier, L. (2020). Are Less Developed Countries More Exposed to Multinational Tax Avoidance? Method and Evidence from Micro-Data. *The World Bank Economic Review*, 34(3), 790–809. <https://doi.org/10.1093/wber/lhz002>

Johansson, A., Skeie, O. B., Sorbe, S., & Menon, C. (2017). Tax planning by multinational firms: Firm-level evidence from a cross-country database. *OECD Economics Department Working Papers*, 2017(1355), 64. <http://dx.doi.org/10.1787/9ea89b4d-en>

Johnston S S (2020) Apple Raises App Prices in Wake of India's New Equalization Levy, *Tax Notes International* 100(5): 700-701.

OECD (2015) Addressing the Tax Challenges of the Digital Economy ACTION 1: 2015 Final Report.

OECD (2018) Tax Challenges Arising from Digitalisation - Interim Report.

OECD (2020a) Tax Challenges Arising from Digitalisation – Report on Pillar One Blueprint.

OECD (2020b) Tax Challenges Arising from Digitalisation – Report on Pillar Two Blueprint.

OECD (2020c) Tax Challenges Arising from Digitalisation – Economic Impact Assessment.

OECD (2020d) Corporate Tax Statistics.

Tax Justice Network. 2020a. Watershed data indicates more than a trillion dollars of corporate profit smuggled into tax havens. London: Tax Justice

Network: <https://www.taxjustice.net/2020/07/08/watershed-data-indicates-more-than-a-trillion-dollars-of-corporate-profit-smuggled-into-tax-havens/>.

Tax Justice Network. 2020b. The State of Tax Justice 2020. London: Tax Justice

Network: <https://www.taxjustice.net/reports/the-state-of-tax-justice-2020/>.

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