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INTERNATIONAL CORPORATE TAX REFORM

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EXECUTIVE SUMMARY

To relieve the pressure on the outdated international corporate tax system, an ambitious reform was agreed at the Inclusive Framework (IF) on Base Erosion and Profit Shifting in 2021, with now 138 jurisdictions joining. It complements previous efforts to mitigate profit shifting by addressing the challenges of the digitalization of the economy through a new allocation of taxing rights to market economies (Pillar 1) and tax competition through a global minimum corporate tax (Pillar 2).

This paper concludes that the agreement makes the international tax system more robust to tax spillovers, better equipped to address digitalization, and modestly raises global tax revenues. Global corporate income tax revenue is estimated to rise by about 6 percent (0.15 percent of GDP)—at the cost of some investment decline. This revenue effect could be larger in the long run as pressures from tax competition and profit shifting abate. Country-specific effects are hard to gauge but will likely be negative in some investment hubs. Developing countries will likely gain, but effects are modest in relation to their large revenue needs for development.

Implementation of the agreement requires an active approach by all countries and calls for rethinking domestic policy. Countries will need to make strategic decisions in response to the agreement, such as determining whether and how to adopt the rules agreed in Pillar 2 and (also for countries not members of the IF) how to react to the adoption by others. This paper provides some guidance, including for adopting at least the qualified domestic minimum top-up tax. Countries are also advised to review their general corporate tax structure, investment tax incentives, and anti-avoidance rules. IMF Capacity Development helps countries navigate these domestic policy responses by assessing their implications and by building capacity for implementation.

The international tax framework will likely continue to evolve beyond the IF agreement by responding to emerging challenges and pressures from fiscal spillovers. Reforms toward an allocation that is more robust to tax spillovers, such as destination-based taxation, could, for example, start by widening the coverage of Pillar 1. The recent agreement may also pave the way for higher taxation of excess profits. To serve the interests of developing countries more forcefully, simplification of profit allocation rules can be achieved by an expansion of formula apportionment and the use of safe harbor rules. Also, a greater role of withholding taxes, for example on outgoing service payments, can shape the future developing country agenda.

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Glossary

ADS	Automated Digital Services
AETR	Average Effective Tax Rate
ATAD	Anti-Tax Avoidance Directive
ATAF	African Tax Administration Forum
BEFIT	Business in Europe: Framework for Income Taxation
BEPS	Base Erosion and Profit Shifting
CbC	Country-by-country
CbCR	Country-by-country Reporting
CCCTB	Common Consolidated Corporate Tax Base
CD	Capacity Development
CFC	Controlled Foreign Company
CIT	Corporate Income Tax
DBCFT	Destination-Based Cash-Flow Tax
DST	Digital Services Tax
EBITDA	Earnings Before Interest, Tax, Depreciation, and Amortization
EPT	Excess Profit Tax
ETR	Effective Tax Rates
EU	European Union
FA	Formula Apportionment
FITAS	Framework for International Tax Administrative Strengthening
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GloBE	Global Anti-Base Erosion
IF	Inclusive Framework
IIR	Income Inclusion Rule
IMF	International Monetary Fund
LIC	Low-Income Countries
METR	Marginal Effective Tax Rate
MLI	Multilateral Instrument
MNE	Multinational Enterprise
OECD	Organisation for Economic Cooperation and Development
P1	Pillar 1
P2	Pillar 2
PCT	Platform for Collaboration on Tax
QDMTT	Qualified Domestic Minimum Top-up Tax
RPA	Residual Profit Allocation
SDG	Sustainable Development Goals
STTR	Subject to Tax Rule
UN	United Nations
UTPR	Undertaxed Profits Rule
WHT	Withholding Tax

INTRODUCTION

1. On October 8, 2021, 136 members of the Inclusive Framework (IF) on base erosion and profit shifting (BEPS) agreed on a major overhaul of the international corporate tax system.¹

The century-old system had come under tremendous pressure in light of cross-border profit shifting by multinationals, intensified tax competition between countries, globalization, and digitalization. The issue had thus reached the top of the global policy agenda, especially in the G20, in the aftermath of the global financial crisis. The original G20/OECD BEPS project, which concluded in 2015 with an agreement on 15 action items, focused on addressing cross-border tax loopholes that were eroding corporate tax bases. They, however, largely left the framework itself intact. Last year's IF agreement goes further: it reforms some of the more fundamental building blocks of the system, such as the allocation of taxing rights between countries, the separate accounting principle of multinational affiliates operating in different countries, and the coordination among countries on a global minimum corporate tax rate.

2. Fund staff have long been active in international corporate tax discussions, most notably on issues of special relevance to developing countries and on the economic impact of reforms (Box 1).

International tax issues have been an integral part of the IMF's country work and analytical agenda. Distinct comparative advantages of IMF contributions are based on experience in working with developing countries and unparalleled expertise on the economic analysis of international tax rules. A 2014 Board Paper (IMF 2014), for instance, explores the mounting pressures on the system due to the cross-border spillovers from profit shifting by multinational enterprises (MNEs) and fierce tax competition between countries. Moreover, the paper highlights the specific challenges for developing countries in dealing with the prevailing international tax system, as well as the implications of digitalization. A more recent Board Paper (IMF 2019) assesses various principle-based solutions to these challenges, guided by criteria for a robust, fair, and enforceable framework. The different papers have been widely presented and discussed, have found their way into IMF capacity development (CD) and surveillance work, and were accompanied by an active research agenda with more granular contributions to the global policy debate. Ideas from these IMF papers have also informed the global policy discussion that has led to the IF agreement.

3. This new paper contributes further to the international corporate tax debate in four important ways.²

First, it takes stock of the reforms agreed in the IF—as well as other ongoing international reform efforts—and assesses them based on the criteria developed in IMF (2019). It concludes that the IF reforms are a major step towards a more robust system with important benefits to be expected, including for developing countries. However, there remains room for further improvement as the system evolves and regarding reform aspects still under discussion, especially to address the concerns of low-income countries (LICs). Second, the paper offers fresh analysis on the impact of different components of the IF agreement, using simulations. Such analysis

¹ Mauritania and Azerbaijan joined the IF subsequently, bringing the number of participants up to 138.

² This follows up on an informal Board meeting on November 17, 2021, where an update was provided on the IF agreement and staff assessment. Several Directors requested to update the board with a new board paper.

is largely lacking in the literature due to the fundamental nature of the reform and the absence of historic precedents that could inform the debate. Third, the paper discusses how especially LICs should react to the revised international tax framework, both in terms of implementation of the common approaches and the optimal response in their domestic tax policy. It also elaborates on how these reforms contribute to the overall efforts of revenue mobilization as part of the wider development agenda of LICs. Finally, the paper looks into the future and elaborates on how the trajectory of international tax reform could evolve after the IF agreement and other initiatives, to further strengthen the robustness of the system and facilitate revenue mobilization in developing countries.

Box 1. IMF Engagement on International Corporate Tax Matters

CD: International taxation has been an important component of IMF's tax policy and tax law CD. For instance, international tax issues are routinely covered in general tax policy and tax law missions. Over the last five years staff conducted 17 dedicated CD missions on the topic. Since the IF Agreement in 2021, countries are increasingly requesting CD on the best response to the new rules.

Surveillance: Since FY17, international taxation issues have featured in Article IV reviews of 27 members, covering all regions and all income levels. Results of these country-specific analyses have been published in selected issues papers, working papers, and staff reports.

Board papers:

- IMF (2019) notes the unprecedented stress on the international corporate tax system and reviews alternative directions for reform, such as minimum outbound and inbound taxes, formulary methods, and allocation of taxing rights to destination countries.
- IMF (2014) considers spillovers in international taxation. It found that risks associated with base erosion were especially pronounced in developing countries.
- IMF (2009, 2016) analyze corporate debt biases, their role in magnifying macroeconomic stability risks, and their impact on the global financial crisis.

Analytical work:

- An IMF book (De Mooij, Klemm, and Perry 2021) provides a broad overview of international corporate taxation covering (i) how the system works, (ii) its major difficulties and pressure points, and (iii) potential solutions ranging from evolutionary changes to radical reforms.
- Cross-departmental papers have been prepared by FAD and area departments, focused on regional aspects of international taxation. Studies cover the extractive sector in AFR (Albertin and others 2021), digitalization in APD (Dabla-Norris and others 2021), and regional coordination in EUR (Crivelli and others 2021).
- Staff prepared over 20 notes and working papers on international tax issues over the last five years, 9 of which have been published in top-ranked academic journals.
- An analytical chapter of the Fiscal Monitor in April 2022 focuses on international tax coordination, covering corporate, personal and carbon taxation.

Box 1. IMF Engagement on International Corporate Tax Matters (Concluded)

International cooperation:

- Platform for Collaboration on Tax (PCT): This is a joint initiative of the IMF, OECD, United Nations (UN), and the World Bank to strengthen collaboration on revenue mobilization. IMF staff contributes to PCT conferences and events, develops toolkits on international taxation for developing countries, exchanges information on CD activities, and collaborates in the design and implementation of medium-term revenue strategies (MTRS).
- OECD and IF: The IMF holds observer status in the Inclusive Framework and subsidiary bodies. Staff actively contribute to discussions in the IF, OECD working parties and task forces.
- UN: The IMF participates as observer in meetings of the UN Committee of Experts on International Cooperation in Tax Matters and collaborates with relevant UN subcommittees on key policy developments.

THE INCLUSIVE FRAMEWORK AGREEMENT

This section explains the IF agreement and provides a qualitative assessment based on criteria developed in IMF (2019). It then presents an impact assessment, quantitative where possible, covering tax revenues, investment, profit shifting, and tax competition. Finally, it discusses implementation challenges.

A. Details of the Agreement

4. The IF agreement comprises two pillars.³ 138 of 142 IF members have agreed on the reform (Kenya, Nigeria, Pakistan, and Sri Lanka abstained). Implementation of Pillar 1 (P1) is in principle mandatory for all committed countries, with planned effect in 2024 (delayed from 2023). Pillar 2 (P2) reflects a “common approach,” meaning that it is not mandatory to implement these rules, but by agreeing countries must accept adoption and application by others and any implementation must be consistent with the agreed rules. Most parts of P2 can be implemented through domestic law reform and will not require tax treaty changes.

5. P1 mainly covers a revised allocation of taxing rights over a share of profits toward market jurisdictions. P1 allocates 25 percent of MNE profits exceeding a 10 percent return on revenue to market jurisdictions (“Amount A”). It represents a departure from century-old norms, because the taxing right in the market jurisdiction is not dependent on the MNE having a physical presence (a permanent establishment (PE)), and taxable profits are determined on a group basis (rather than applying transfer prices to single entities). It covers slightly over 100 very large MNEs with turnover of at least €20 billion (to be lowered to €10 billion following a review after 7 years) and excludes the natural resource and financial sectors. As P1 applies in addition to—rather than

³ For details and fact sheets, see <https://www.oecd.org/tax/beps/>.

instead of—the existing international tax system based on separate entity level taxation, it also includes rules to relieve double taxation (allocation of income and responsibility for eliminating double taxation will be achieved on a group jurisdictional basis). The agreement also requires countries to remove and not introduce new unilateral digital services taxes (DSTs) and similar measures. Moreover, P1 includes simplification of the arm’s length principle applied to marketing and distribution (“Amount B”).

6. P2 consists of a global minimum tax on “excess profits.” It applies to MNEs with global turnover exceeding €750 million and aims to ensure a 15 percent minimum effective tax on excess profits in each country in which an MNE operates. Excess profits are defined as those exceeding a substance-based income exclusion, which is defined as a return of 10 percent of payroll and 8 percent of tangible assets (foreseen to fall to 5 percent on both over 10 years)—and which is thus a different exclusion from the one granted under P1. The minimum tax is to be implemented through three interrelated tax rules:

- An “income inclusion rule” (IIR) subjects foreign-earned MNE profits to a top-up tax in their residence country if they are effectively taxed below the 15 percent minimum rate in any jurisdiction. Source jurisdictions can pre-empt the application of the IIR by implementing a qualified domestic minimum top-up tax (QDMTT), based on the same scope and rates as the IIR.
- An “undertaxed profits rule” (UTPR) allows source countries to apply a top-up tax (for example, by denying deductions) if no IIR or QDMTT applies. These rules are jointly known as the Global Anti-Base Erosion (GloBE) rules.
- A “subject to tax rule” (STTR), which is a treaty-based rule allowing source jurisdictions to impose limited source taxation (for example, withholding taxes, (WHTs)) on certain related-party payments subject to tax below a minimum rate of 9 percent.

In case more than one rule applies, the STTR has priority, followed by the QDMTT, the IIR, and the UTPR.⁴

7. Several details remain open and will have to be agreed before implementation. Some of these are particularly relevant for LICs.

- Amount B of P1 remains to be finalized. Amount B is intended to simplify and streamline the application of the arm’s length principle to in-country baseline marketing and distribution activities, with a particular focus on the needs of low-capacity countries. These simplifications are important to assure revenue to source countries at a relatively low administrative cost, and, if effective, may provide a model for expansion (for example, toward standardized benchmarking

⁴ Agreeing the rule order has been a contested process, because it raises inter-nation equity issues. The priority of the IIR (benefiting residence and hence mostly advanced economies) over the UTPR (which benefits source countries) has been questioned, but the introduction of the QDMTT in the December 2021 model rules has reduced its importance. The rule order can still matter as source and residence countries can possibly collect the minimum top-up tax if a third low-tax country does not use a QDMTT.

for other activities, especially when local “comparable” company financial data and access to reliable commercial databases are limited or unavailable). The work on these simplifications was postponed to mid-2023, with a public consultation document released late 2022.

- The STTR—which is especially important for LICs—still awaits further guidance on the scope of covered payments. The STTR is a top-up tax, so it applies to covered payments after: (i) tax payable in the recipient (residence) country (taking into account the statutory rate and any preferential adjustments); and (ii) existing WHTs in the payer (source) countries (for example, under domestic tax law, as preserved by other tax treaty provisions).
- The QDMTT awaits further details (such as the specific design features needed to “qualify” and whether it will apply before or after residence-based Controlled Foreign Company (CFC) taxes) and is also important to source countries. The QDMTT permits source countries with a low effective tax rate (ETR)—for instance, due to investment tax incentives—to collect tax up to the global minimum rate.
- Rules are required to eliminate double taxation arising from P1 because the existing system will continue to operate on a different profit allocation basis. While LICs would not ordinarily be expected to be the main relieving jurisdictions, also thanks to *de minimis* rules, clarifying other outstanding issues—such as the impact of WHTs—will be key for them (discussed below).

B. Qualitative Assessment

8. IMF (2019) develops three key criteria to assess the properties of alternative reforms in the international tax framework—and these can be used to assess the two-pillar agreement.

The criteria are: (1) robustness against cross-border spillovers from: (a) profit shifting; and (b) tax competition; (2) ease of implementation, both: (a) practically; and (b) legally; and (3) suitability to the circumstances of LICs. The paper then considered four broad principle-based approaches to reforming the international tax system, some of which are reflected in the IF agreement.

- *Border-adjusted profit taxes*: Full destination-based taxation would make the system robust to profit shifting and tax competition, but only in case of global adoption. Partial adoption would intensify current problems for the nonadopters. Such fundamental reform into uncharted territory is currently not under consideration by any country.
- *Formula apportionment (FA)*: This reform would do away with transfer price calculations and instead allocate the consolidated multinational profits by a formula, for example based on payroll, assets, and sales in each country. FA would address the practical difficulties of obtaining correct arm’s length transfer prices and it would prevent profit shifting. Tax competition would remain, but it would be less intense the greater the share of the sales factor in apportionment, because sales are less mobile than capital or payroll. It would thus represent a partial move toward destination-based taxation. Full FA is not considered under the IF agreement, but the

European Commission proposed such a system for European Union members under the “Business in Europe: Framework for Income Taxation” (BEFIT).⁵

- *Residual profit allocation (RPA)*: This is a limited version of FA, allocating only profits that exceed some definition of routine profit. Given that excess profits are the hardest to allocate under the current system, this addresses a similar concern as FA, while staying closer to the current system. This reform idea is reflected in P1.
- *Minimum taxes*: the paper considered minimum outbound and inbound taxes. Such minimum taxes would reduce pressure from profit shifting and tax competition. This idea is reflected in P2.

IMF (2019) provides an impressionistic summary evaluation of these alternative systems compared to the current international corporate tax system, based on the three key criteria above. Box 2 uses these same criteria to provide an assessment of the two pillars, reflecting clear improvements in several dimensions. It also compares them to full RPA and minimum tax.

9. P1 is a form of RPA but does not fully align with it.⁶ P1 allocates only 25 percent rather than all residual profits and has a very high turnover threshold. Moreover, P1 will not replace the current calculation of transfer prices, but instead creates a new taxing right that, with more limited scope, comes on top of the existing system. This increases the practical and legal complexity for all economies and adds the need for crediting to relieve double taxation.

10. By allowing some profit taxation based on the place of final consumption, P1 does address a fundamental inter-nation equity issue that has been challenged by the digital economy. Allocating profits by place of final destination not only addresses tax competition and profit shifting, but also shifts taxing rights, which traditionally have been assigned to jurisdictions where MNEs have a physical presence. The concurrent removal of DSTs is well in line with IMF (2014, 2019), which argued that the digital economy cannot be meaningfully ring-fenced.

11. P2 comes close to the minimum tax proposed in IMF (2019), but there are differences. P2 contains a substance-based income exclusion. This increases complexity and pares away protections from profit shifting and tax competition over non-excess profits. P2 may also leave gains from overseas indirect transfers untaxed—issues that are important for developing countries.

⁵ Similar proposals were made in the past under the label “common consolidated corporate tax base” (CCCTB).

⁶ Variants of RPA and border-adjusted profit taxes are also discussed in Devereux and others (2021).

Box 2. Summary Evaluation of the IF Agreement and More Fundamental Reforms

IMF (2019) develops an impressionistic summary evaluation of various proposals to reform the international tax system, based on three key criteria listed in the upper row of the Table below. The same framework can be used to assess the two-pillar agreement. The table should be interpreted with great caution, given that it only represents a high-level impressionistic assessment of a reform of which not all aspects have been finalized yet and there are complex interactions from combining the current system with reforms in two pillars applying to different subsets of companies.

	Protection against:		Ease of implementation:		Suitability to circumstances of LICs
	Profit Shifting	Tax Competition	Practically	Legally	
Current arrangements	Orange	Orange	Red	Green	Red
Full RPA	Green	Light Green	Orange	Yellow	Light Green
Pillar 1	Yellow	Yellow	Red	Light Green	Orange
Full minimum taxation	Light Green	Light Green	Orange	Light Green	Light Green
Pillar 2	Yellow	Yellow	Light Green	Light Green	Orange

Key:

Red	Orange	Yellow	Light Green	Green
Low	Low Medium	Medium	Medium High	High

Comparison to current arrangements: P1 and P2 achieve notable improvements over the current system by providing better protection against profit shifting and tax competition, improving or leaving unchanged practical implementation and being more suitable to the circumstances of LICs. P1 does not improve practical implementation because it applies in addition to the remaining current system. As P1 and P2 require changes in law, they are inevitably harder to implement legally than maintaining the status quo.

Comparisons of pillars to more fundamental reforms: P1 provides weaker protection against profit shifting and tax competition than comprehensive RPA, because of the small share of profits to be reallocated and the small number of covered enterprises. The tied removal of unilateral DSTs is, however, a welcome addition. Under P2, the substance-based income exclusion dampens protection against profit shifting and tax competition. The introduction of new concepts, such as taxation based on ETRs and financial accounting profits addresses potential circumvention, but also create complications in enforcement that might be particularly onerous for LICs. In making such comparisons it should not be forgotten that the more fundamental reforms may be less politically feasible.

C. Impact of the Agreement

12. The economic impact of the agreement is difficult to assess and estimates of its effects on revenue, investment, and profit shifting are to be interpreted with caution. Uncertainty is common for any type of economic impact assessment of taxes but is much more pronounced in assessing reforms of the two pillars for several reasons:

- The first source of uncertainty is related to the *details of the reform*. Some important aspects have not yet been finalized but can be highly relevant for its impact. Other details are too

complex to be modelled or applied to data that are not available at the required level of detail. Also, there can be interactions between reforms in P1 and P2, which need to be incorporated in a comprehensive assessment.

- Second, the impact of P2 for an individual country will depend on the *assumptions regarding adoption by all other countries* where its MNEs operate. This holds for all four rules. Since this by itself is inherently hard to predict, any impact assessment will reflect the assumptions, which should not be confused with the likely impact of the agreement.
- Third, *behavioral responses by MNEs* in investment and profit shifting could be explored by using estimates from the literature, based on past variations in policies. Yet, the unprecedented character and size of the two-pillar reform and its coordinated nature may bring us into unknown territory, especially as responses can be highly non-linear.
- Finally, predicting *behavioral responses by governments* regarding their domestic corporate tax policies (such as changes in tax rates or tax incentives) is inherently difficult, especially in light of the points above. They can, however, be of critical importance for the overall impact.

With these caveats in mind, this section aims to contribute to understanding the implications of the reforms based on (i) simulations of the static impact (i.e., excluding behavioral responses by MNEs and governments) and (ii) an elaboration on the dynamic responses by MNEs and domestic governments (with a more detailed discussion provided later in the section on country-level reactions). The impact includes both IF members and other countries, as they will also be affected at least by some of the provisions, such as outbound minimum taxes, or by the generally reduced tax competition pressure. The analysis here builds on the April 2022 Fiscal Monitor. Appendix I provides details on data and methodology.

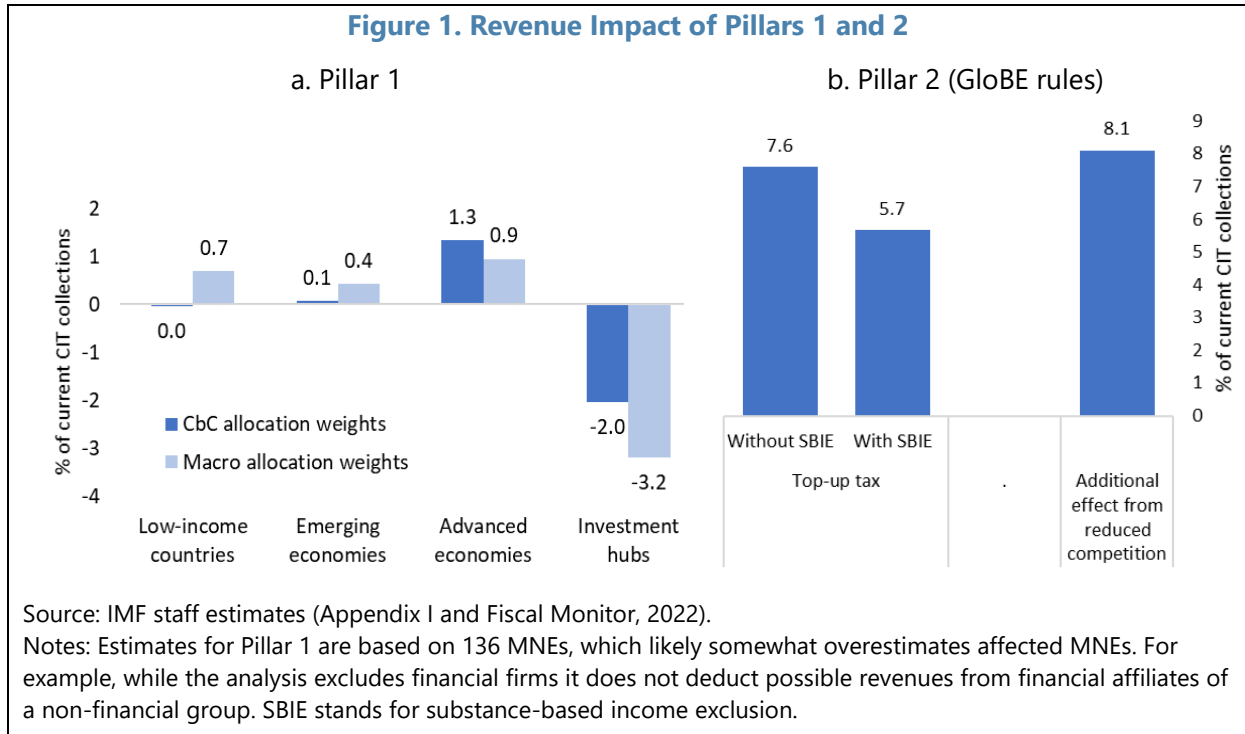
Corporate Income Tax Revenue

Pillar 1

13. P1 is estimated to reallocate about 2 percent of total profits of MNEs, mainly from low-tax investment hubs to other countries, raising global Corporate Income Tax (CIT) revenue by \$12 billion. Due to the high threshold, P1 applies to just over 100 MNEs (based on data for 2019).⁷ The estimated global tax base for the new taxing right is around \$150 billion. Since crediting is foreseen to avoid double taxation of these profits, aggregate revenue impact stems from differences in tax rates between countries that are allocated additional profits and those that must provide credits. A rough approximation of this reallocation can be obtained by comparing the current allocation of excess profits with an allocation based on sales by destination, which we proxy

⁷ The small number of MNEs does not only reduce revenue potential directly but also implies that any behavioral change of a limited number of MNEs, including for tax planning purposes, can further diminish the revenue impact. Splitting a group, for example, could bring it below the threshold.

by using information on aggregate sales.⁸ What becomes clear from the estimates is that a significant portion of the excess profits is reallocated from investment hubs (with, on average, relatively low tax rates) toward other countries. Indeed, investment hubs lose approximately 2–3 percent of their current CIT revenues, while revenues rise by around 0.7, 0.4 and 0.9 percent of CIT revenues in LICs, emerging market, and advanced economies, respectively (Figure 1a). These estimates correspond to a net increase of global CIT collection by \$12 billion. Of course, such revenue gains could be partly offset by the possible loss of revenue from DSTs in countries that have them—although those currently in operation raise little revenue (Dabla-Norris and others 2021).



Pillar 2

14. P2 would raise global CIT revenues by 5.7 percent, which is before any behavioral responses by firms (Figure 1b). According to staff simulations, 18.5 percent of global profit of MNEs is taxed below 15 percent (\$1.47 trillion in 2019). On average, the current tax rate on these profits is 5 percent, so that profits exceeding the substance-based income exclusion would be subjected to a average top-up tax of 10 percent. The total amount of the top-up tax is the same irrespective of whether it is applied at the source (QDMTT), residence (IIR), or potentially other (UTPR) country. If QDMTT adoption is widespread (and as discussed below, there are strong incentives for that), the

⁸ Sales of the in-scope MNEs on a country-by-country basis are not fully publicly known, which is why alternative proxies are used. Note also that the calculations here do not account for specific design features of P1 that can affect the net allocation, such as those related to the specific crediting mechanism (surrender of taxing rights), corrections for the so-called marketing and distribution safe harbor, and the portion of sales by some MNEs that can be left unallocated ('tail-end revenue').

additional revenue will mostly be collected by the source jurisdictions that currently apply low ETRs. However, if not all countries adopt the QDMTT, it becomes hard to predict which country will collect the top-up tax, as it will depend on both a country's own rules and the rules adopted by others. Moreover, behavioral responses can significantly modify the distribution of revenue across countries.

15. As now envisaged, the STTR is unlikely to raise significant additional revenue for developing countries. Appendix 1A assesses the scope and revenue potential of the STTR. Among treaties currently in force for developing countries, the share with a WHT below 9 percent is about 19 percent for interest and 20 percent for royalties. For technical service fees, however, close to 80 percent of treaties have a WHT below 9 percent, in most cases (78 percent) zero. The number of treaties eligible for the STTR, however, shrinks significantly when accounting for the nominal corporate tax rate in the recipient country.⁹ We find that in total, the minimum would apply to 101 treaties for 32 developing countries, concluded with 13 countries (6.9 percent of the total number of treaties).¹⁰ Based on the current design, the revenue effects of the STTR will likely be limited. Among the 101 treaties that are identified as in scope, 20 treaties for which we have detailed information on service imports will give rise to positive STTR for seven developing countries.¹¹ The amount of STTR revenue varies substantially, ranging from near zero to 0.14 percent of current CIT revenue for individual treaties. In aggregate, the STTR would bring additional CIT revenue of up to 0.14 percent for a respective source country. The majority of the STTR revenue comes from service payments. Restricting the STTR to royalties alone would generate additional revenue in only one treaty, adding 0.003 percent of CIT revenue for the respective source country. One important caveat of this revenue analysis is that there is no detailed information available for bilateral interest payment or capital gains, which will understate the total revenue effects of the STTR. On the other hand, if recipient countries respond to the STTR by raising their tax rates, the revenue effects for source countries might be smaller.

Firm Investment

16. In aggregate, MNE investment is predicted to decline modestly in face of higher ETRs. ETRs can be expected to rise due to direct effect of the GloBE rules, tax increases from reduced competitive pressure, and reduced scope for profit shifting. Focusing on the GloBE rules, the OECD Economic Impact Assessment (OECD 2020) shows that the average global marginal effective tax rate (METR) is projected to increase by about 1.85 percentage points. The global MNE investment rate would consequently fall by 0.12 percentage points, whereas the total business investment rate

⁹ Using the nominal corporate tax rate is an oversimplification, as recipient countries may offer special tax treatment, such as reduced rates or tax holidays. The presence of such special regimes is not only a challenge for estimating revenue effects, but can also affect real STTR revenue, if any such special tax treatment is not readily observable to the source country.

¹⁰ For interest and royalties, the top-up rate for STTR is positive for 26 and 27 treaties, respectively. For technical service fees, 101 treaties have room for additional top-up tax. The assessment accounts for the planned increase of the standard CIT rate in the UAE to 9 percent.

¹¹ Note that the scope of covered payments under the STTR is still to be agreed.

(including by firms other than MNEs) would fall by 0.05 percentage points.¹² UNCTAD (2022) estimates that the potential downward effect on global Foreign Direct Investment (FDI) is about 2 percent.

17. For some countries, the GloBE rules could also encourage real investment. For instance, the substance-based income exclusion rises with payroll and real assets placed there. The METR can therefore be negative for investment in a country where pre-existing profits exceed the substance-based income exclusion, as any additional investment or payroll location increases the tax shield. GloBE can, however, also raise the METR in other circumstances (Appendix IB). Keen and others (forthcoming) show that among a sample of 32 host countries (virtually all advanced economies), high-tax jurisdictions would gain MNE investment at the expense of low-tax jurisdictions that are constrained by the minimum at the 15-percent minimum.

Profit Shifting

18. Cross-border tax avoidance will decrease as a result of smaller differences in statutory tax rates across countries. At present, 36 jurisdictions either do not tax corporate profits at all or apply a statutory tax rate below 15 percent. The tax savings from relocating profits to those jurisdictions will decline once all profits are taxed at the minimum ETR of 15 percent. MNEs will then adjust their tax planning behavior accordingly. To assess the order of magnitude of this effect, we use empirical estimates from a meta-analysis of the relationship between MNEs' reported profits and statutory tax rate differentials between countries (Beer and others 2020). By imposing several simplifying assumptions, the introduction of a 15 percent minimum rate is estimated to reduce the amount of profit relocated for tax purposes by 36 percent.¹³ The global tax revenue loss from tax avoidance declines by 27 percent, which is equivalent to an increase in global CIT revenue of 1 percent.

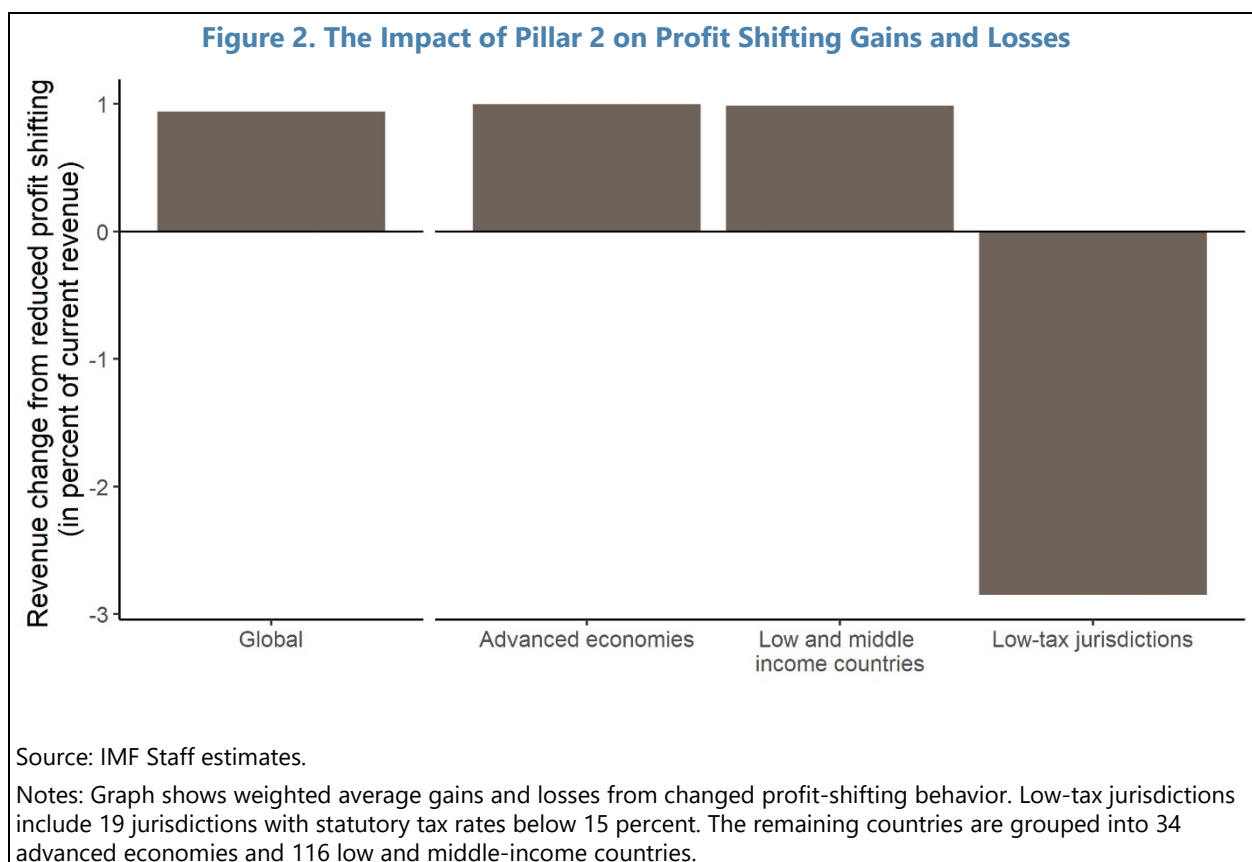
19. While most countries benefit from reduced profit shifting, low-tax jurisdictions might incur a loss, the size of which is difficult to gauge. Simulations suggest that LICs stand to gain around 1 percent of current MNE-linked CIT revenue from changed profit shifting behavior and low-tax jurisdictions could lose around 2.8 percent, on average (see Figure 2). Those estimates need to be interpreted with great caution, however, because profit shifting depends on other country-specific factors beyond the statutory CIT rate¹⁴ and likely has an important fixed cost component. Indeed, empirical evidence suggests that profit shifting is highly nonlinear in the tax rate differential (Dowd and others 2017). If no (rather than just less) profit were shifted into low-tax jurisdictions in response to P2, revenue effects would be more dispersed and low-tax jurisdictions would lose

¹² Applying a presumed long-term tax elasticity of investment of -0.08 for MNE groups (with profitability above 10 percent).

¹³ The calculation assumes a semi-elasticity of reported profit with respect to the tax rate differentials of -1.2 and uses global data on CIT revenues and tax rates of 2019.

¹⁴ For instance: the number and size of MNEs within a country, the presence of anti-avoidance rules, specific provisions in double tax treaties (and with which countries those treaties have been concluded), or cultural and language ties with low-tax jurisdictions.

more.¹⁵ On the other hand, the revenue loss of low-tax jurisdictions from changed profit shifting behavior could be compensated by the extra revenue from the minimum tax itself, at least as long as some profits continue to be shifted into these countries.



Tax Competition

20. An additional positive revenue impact from P2 could come from reduced competition over corporate tax rates, which could boost global CIT revenues by an extra 8.1 percent. Such dynamic effects can, albeit with caution, be inferred from past experience with tax competition. For instance, IMF (2022b) finds that a 1 percentage point increase in the world average CIT rate will, on average, induce a country to raise its own rate by 0.6 percentage points. By putting a floor of 15 percent, the simulations above suggest that 18.5 percent of MNE profit will indeed face a higher CIT burden, implying that countries will feel less pressure to keep their own tax rates low. Using simulations of the tax competition model, we find that the average CIT rate would rise from 22.2 to

¹⁵ Other factors can further modify the profit shifting effects of the agreement, such as: (i) the exclusions under P2, especially the turnover threshold (ii) the substance-based income exclusion; (iii) tax incentives, which affect effective tax rates under the GloBE rules, but can also create their own effects on profit shifting; and (iv) the effects of P1 on profit shifting.

24.3 percent due to the global minimum tax. The associated boost in global CIT revenues would be 8.1 percent, exceeding the direct effect on revenue (Figure 1b).

D. Implementation Challenges

21. P1 faces several uncertainties and challenges with respect to adoption and implementation. As stated before, agreement needs to be reached on several relevant details of P1. Once achieved, it will need to be shaped in the form of a multilateral convention that requires ratification by a critical mass of jurisdictions. In the absence of a ratified agreement, there are no obvious alternative implementation options, as by its very nature—the need for an agreed base, formula, and crediting mechanism—it does not lend itself for unilateral adoption by first movers or different implementation across countries. Non-adoption of P1 could have severe—and hard to predict—repercussions. Most importantly, it could reopen the debate about unilateral DSTs with the attendant risk of trade disputes—which could come along with significant global economic costs (OECD 2020). Regarding existing DSTs, for example, the US Trade Representative in 2018 had initiated retaliatory duties, which were subsequently suspended in light of ongoing IF negotiations on P1 and following a commitment by Austria, France, Italy, Spain, the United Kingdom, and Türkiye (and later India) to abolish their DSTs¹⁶ prior to the entry into force of P1. Another aspect is that, for some countries, agreement on the two-pillar reform was acceptable as a package. It raises the question as to whether P2 alone would be politically viable for them, although in principle each pillar can operate independently.

22. Implementation risks under P2 are more limited. While P2 would benefit from widespread adoption (as discussed in the section on country-level reform priorities), being a common approach it could feasibly be pioneered in a smaller number of countries and be subsequently expanded. Moreover, if countries adopted measures that were not fully aligned with the P2 model rules,¹⁷ but still reasonably similar (for example, through non-qualifying outbound minimum taxes), such actions would still contribute toward setting a floor on global tax rates and limit profit shifting and tax competition. Currently, several countries have published draft legislation for P2 adoption (Netherlands, Switzerland, United Kingdom). On December 12, 2022, EU members agreed on a Directive requiring implementation in national law by end-2023. Also in December 2022, Korea introduced P2 minimum tax rules in domestic law, becoming effective in 2024. The United Kingdom committed to including P2 in its spring 2023 Finance Bill. Several jurisdictions have issued a public consultation on implementation (including Australia, Canada, Malaysia, and New Zealand).

¹⁶ The scope of this commitment to repeal national DSTs following successful P1 implementation is not clear, however, for instance regarding instruments that have not been associated with the discussion on DSTs but bear some resemblance, such as European cultural contribution levies.

¹⁷ See OECD (2021a, 2022a, and 2022b) for the model rules and further implementation guidance.

Administrative and Compliance Costs

23. Implementation challenges arise also as the evolving details of the rules to implement the two-pillar agreement are increasingly complex and will create high administrative and compliance costs. As noted, the new taxing right in P1 comes on top of the existing system. Hence, while none of the complexities of the current system disappear, new ones arise. For instance, complications relate to rules to determine the destination of sales, used for the allocation of profits; rules to provide credits for existing taxing rights, to avoid double taxation; and guidance on how to administer the rules, which requires trust and cooperation among tax authorities. The streamlined procedures and centralized filing and payment aim to mitigate some of this burden. P2 too is complicated. Starting from accounting rules, several adjustments must be made to define which taxes and income are covered for the minimum tax calculation—sometimes leading to gray areas that call for legal interpretation. Then, different and interrelated top-up taxes could apply. A country’s application of the rules will depend on what other countries do, requiring adequate cooperation and exchange of information. While simplification is frequently mentioned as being an important criterion for reform—and some rules are intended to simplify, such as the Amount B under P1—this has not been the main priority of the reforms. Indeed, complexity seems a major concern for tax administrations and business alike.¹⁸

24. Administrative complexity is a special concern for developing countries. As illustrated by the Tax Administration Diagnostic Assessment Tool (TADAT) evaluations,¹⁹ many LICs lack key features of effective revenue administration when it comes to the core processes for registration, filing, and payment. Notably, digitalization and management of key risks posed by MNEs are still imperfect, and the legislative provisions on tax administration and procedures are often weak. Moreover, many LIC revenue administrations have not established a dedicated international tax unit or work program, which complicates implementation of new global rules. Enforcement of taxes on MNEs has therefore been extremely hard for these countries prior to any reforms, and evidence suggests major complications with transfer pricing (PCT 2017, Albertin and others 2021) and relatively large revenue losses from profit shifting (Crivelli and others 2016). Implementation of the two-pillar agreement may raise additional challenges:

- Many tax administrations lack *the capacity to reform*. While managing their day-to-day work with often limited human, technological, and financial resources, they are confronted with multiple reform initiatives, including for general revenue mobilization and new international standards. Many tax administrations have not yet been able to implement earlier international initiatives such as Automatic Exchange of Information and the original BEPS package. Adding more complicated reforms on top of this agenda will create major challenges for them, including

¹⁸ See public comments received on the Implementation Framework of the global minimum tax (for instance Kenya, EY, Deloitte, BIAC): <https://www.oecd.org/tax/beps/public-comments-received-on-the-implementation-framework-of-the-global-minimum-tax.htm>.

¹⁹ See <https://www.tadat.org/performanceAssessmentReports>.

on what to prioritize.²⁰ The lack of adequate resources will also prevent or hinder the effective implementation of specific, P1 and P2-related functions and tasks.

- Reforms compete with other *priorities*. International reforms should be weighed against other priorities in supporting the development agenda of LICs. Some international obligations, such as adoption of the common reporting standards and country-by-country reporting, imply an initial investment by revenue administration, with a potential future benefit due to reciprocal data sharing. However, many LICs do not yet have access to the data from information exchange (OECD 2022c) or have no capacity to effectively use such data (IMF 2022b).
- *Experience* is limited. Developing countries traditionally focus on administering and auditing inbound investments and often have limited experience in collecting revenues from outbound investment. This will hinder the administration of, for instance, the IIR and the UTPR (if adopted). Also, they usually have limited experience in coordinating and cooperating with foreign tax administrations and especially in participating in cross-border dispute resolution. LICs could thus find themselves at a disadvantage vis-à-vis more advanced peers.
- The *timeline* is challenging. While guidance is provided in the form of model rules, many tax administrations have had little engagement in early policy decisions, are unaware of evolving uncertainties in the implementation packages, and lack good understanding of the choices to make—both in implementing the agreement and in responding with their domestic policies. The short timeline leaves little room for consultation with businesses and other stakeholders and provides insufficient time for preparing the administration to manage the new tasks. A longer implementation timeline might thus be necessary (which is feasible under P2). In the transition, simpler solutions might be called for, such as alternative minimum taxes or domestic safe harbors.

OTHER INTERNATIONAL COOPERATION INITIATIVES

This section puts the IF agreement into a wider context of international cooperation efforts in corporate taxation. Other efforts remain important, not least given that the agreement only applies to a subsection of MNEs, profits, and countries. The section elaborates on the G20/OECD BEPS initiative, cooperation through the UN, and regional coordination efforts.

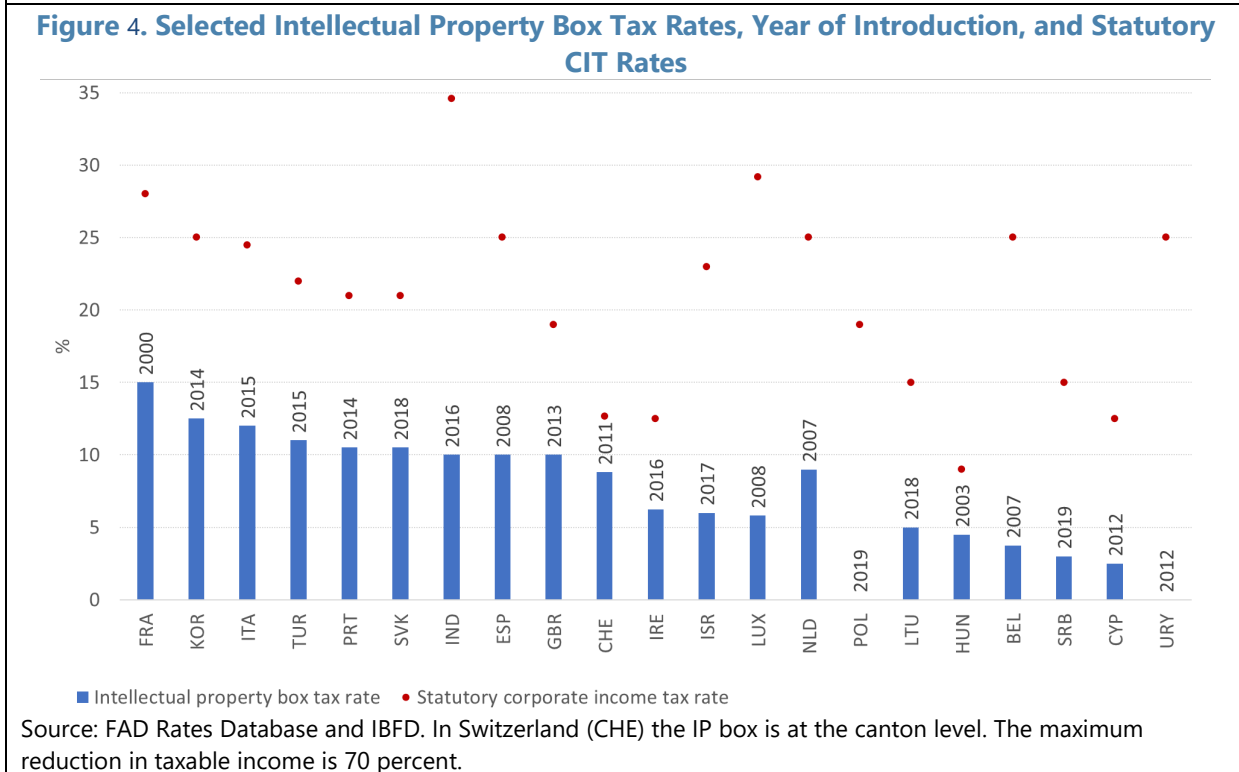
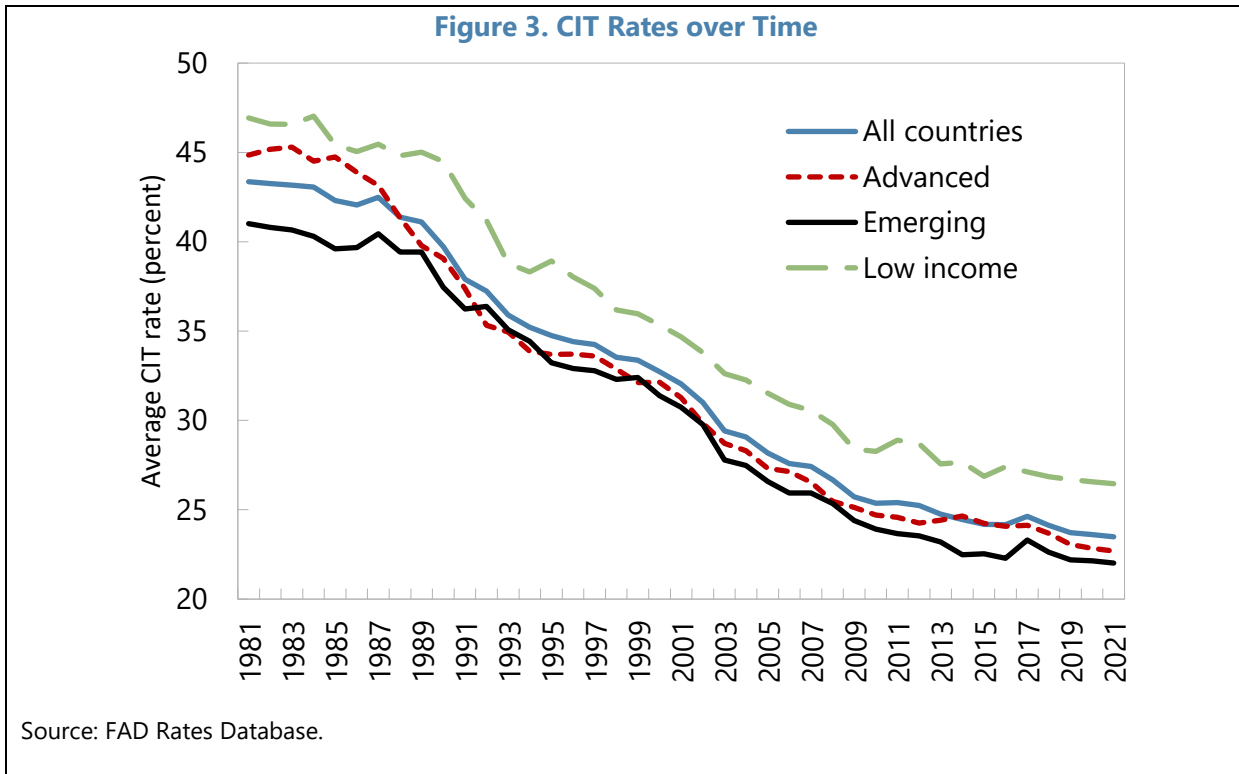
A. BEPS and Beyond

25. Other international cooperation efforts during the last decade have focused on addressing BEPS. In 2015, the G20/OECD BEPS project concluded with 15 actions to combat profit shifting, comprising of minimum standards and common approaches in legal and administrative measures (Appendix II). In 2016 and 2017, the EU adopted two anti-tax avoidance directives (ATAD I

²⁰ To address this concern, the IF 2021 October Statement included a commitment that technical assistance will be available to LICs to support implementation. Besides, the OECD proposed a Roadmap to accelerate support for the implementation of the international tax rules (OECD 2022c).

and II), largely inspired by the BEPS project. While it might be too early to assess the structural impact of these measures—and many countries are still in the process of implementing them—initial signs suggests that the BEPS minimum standards have thus far had some, but likely modest implications:

- *BEPS Action 5* on “harmful” tax practices requires preferential tax treatments to be linked to substantial activities (“nexus requirement”). As of July 2022, 319 preferential tax regimes have been reviewed, leading to many amendments. Still, it has neither prevented the spread of preferential intellectual property regimes nor a further decline in statutory CIT rates (Figures 3 and 4). Paradoxically, as very low (or zero) tax rates in and of themselves are not deemed “harmful” under this approach, the nexus requirement could make tax competition worse, for example, by inducing governments to reduce their general rate in order to attract real investment.
- *BEPS Actions 6 and 14* introduce provisions to prevent tax treaty abuse and improve cross-border tax-related dispute resolution mechanisms either through what is called the Multilateral Instrument (MLI) or bilateral negotiation of tax treaties. Many countries have signed the MLI. Yet, 45 current IF members did not (including the United States). An analysis of Schoueri and Tomazela (2021) suggests that the MLI had a limited influence on the treaty policy of the non-signatories.
- *BEPS Action 13* requires large MNEs to report key information on a country-by-country (CbC) basis. This could facilitate risk-based compliance management by tax administrations to help mitigate base erosion. Empirical evidence suggests that this has had some impact. For example, Joshi (2020) finds that CbC reporting raises the consolidated ETR of an MNE group by 1-2 percentage points. Hugger (2020) finds, however, that the number of companies that report turnover just below the threshold increased. De Simone and Olbert (2021) estimate that CbC reporting reduced the number of affiliates operating in low-tax jurisdictions by 0.6 to 3.1, on average. They also find that closure of affiliates was accompanied by reallocating real activities to low-tax jurisdictions. An important deficiency in Action 13 is that most developing countries do not have access to the CbC reports, given hard-to-meet confidentiality safeguards. OECD (2021b) finds that only three LICs had access to CbC information; and this number had only increased to five one year later (OECD 2022a). Another obstacle is the effective use of such incoming information in tax compliance management by developing countries, which requires adequate information technology and data analytics capacity (IMF 2022b).



26. The BEPS project had two key deficiencies that the IF agreement aims to address. First, the work on reallocating taxing rights to address increased digitalization of the economy (Action 1) concluded in 2015 with “the need for continued work in this area.” This ultimately led to P1 of the IF

agreement. Second, tighter anti-tax avoidance measures under BEPS make real investment more responsive to corporate tax rate differentials and thereby run the risk of intensifying tax competition. For instance, Becker and Fuest (2012) find that tightening anti-avoidance rules can prompt low-tax jurisdictions to further lower their tax rates and engage in more aggressive tax rate competition. P2 aims to further address profit shifting and puts an effective limit on tax competition.

B. Cooperation Through the United Nations

27. The UN has developed its model treaty to update WHTs so they can remain a robust and straightforward mechanism to collect and enforce source taxation rights, which is particularly important for LICs. Potential base-eroding cross-border payments include interest, royalties, and fees, especially for services, such as technical, management, or consultancy services, including between entities of MNE groups. An asymmetric tax treatment of such services arises when the cost is deductible for the payer (service recipient) at the CIT rate, while the fee income derived from the services may be untaxed or subject to a low (or zero) rate of tax in the hands of the payee (service provider). An important way to combat this asymmetric tax treatment is to apply cross-border WHTs on the gross payment of the service fees. This mechanism can preserve the source country's taxing rights, especially of LICs, because it shifts tax collection to the payer.²¹ It is particularly relevant considering the high (and rising) level of trade in services.²²

28. The UN Treaty Model now permits source taxation of fees for technical, management, or consultancy services subject to a rate limit. This is in Article 12A, which was included in the 2017 UN Model. Like any treaty, it is subject to agreement by treaty partners. Article 12A is broader than the STTR, which permits source countries under their tax treaties to impose taxes on defined payments only (the scope of which is still uncertain). Moreover, the STTR is a top-up tax, so only applies after taking account of the tax payable in the recipient and payer countries (for instance, as preserved under other tax treaty provisions). This means, for example, that the benefit to LICs is dependent on behavioral impacts (for example, if an intermediate jurisdiction increases its statutory CIT rate to 9 percent, the STTR will not apply for source countries). Further, existing WHT rates in treaties are given priority (for example, if the existing WHT rates under an applicable tax treaty are higher, the STTR does not apply).²³ Therefore, WHT rates above 9 percent can still apply and LICs

²¹ See UN Tax Committee on taxation of services: <http://www.un.org/esa/ffd/tax-committee/taxation-of-services.html>.

²² It is important to consider the full implications of any such WHT mechanism, including whether it may lead to the burden of the tax being shifted to the local recipient of the cross-border service (i.e., the local payer). In some markets it is customary for the offshore service provider to insist on the payment being grossed-up by the amount of tax withheld, which would determine the incidence in the short, but not in the long run. This is not necessarily a problem, as also for a standard CIT the incidence is unclear.

²³ The UN Tax Committee is considering including a simplified and broadened STTR in its next update of the UN Model Convention. Unlike the P2 version, the UN STTR would not be limited to transactions between related parties and would in principle apply to all types of income including capital gains (unless specifically excluded through bilateral negotiation). It would also not operate as a top-up tax but allow the source country to deny treaty benefits if the payment is not subject to a minimum level of tax in the recipient country; see: <https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2022-10/CRP%2023%20-%20UN%20Model%20Subject%20to%20Tax%20.pdf>.

should continue focusing on those other WHT-related treaty Articles, including 12A, when developing their tax treaty policy framework.²⁴

29. In a similar spirit, the 2021 UN Model adopted Article 12B, dealing with income from automated digital services (ADS). Where agreed between treaty partners, Article 12B allows gross basis taxation²⁵ (for instance, through WHT) on cross-border payments with respect to services such as on-line advertising, intermediation, social media, digital content provision, cloud computing, sale of data of users of a digital interface etc. The inclusion of Article 12B in the UN Model was ostensibly adopted with the interests of developing countries in mind by seeking to preserve their taxing rights in a simpler way than P1. Compared to more principled and broader reforms applied to most sectors in the economy and with a stronger element of destination-basing, Article 12B has the disadvantage of being a ring-fenced approach where the scope is confined to ADS. However, in the event of a failure in the implementation of the two-pillar agreement, Article 12B could be a way to bring within the scope of tax treaties those unilateral measures directed at ADS (such as DSTs), which can currently be designed to fall outside the scope of tax treaties thereby giving rise to double taxation risks and other distortions (see IMF Staff 2021). Of course, a treaty might not exist or never materialize, or the required treaty change may prove elusive, given the asymmetry in digital trade.

C. Regional Cooperation Initiatives

30. Regional cooperation can be a complement to the global reform process and support implementation of the IF reforms. The EU directive on P2, for example, ensures even application throughout the EU, which is simpler and preferable to a country-specific approach. A regional solution can also directly address any contradictions of the reforms with existing regional legal frameworks.

31. Beyond coherent implementation, regions can strive for more ambitious cooperation, for which there might not be global consensus or incentives for adoption.²⁶ Differences in economic structures—including the availability of natural resources—, administrative capacity, and culture tend to be smaller within regions, potentially making agreement on regional tax coordination easier. Moreover, tax spillovers (from investment relocation, profit shifting, and tax competition) can be larger on a regional scale, raising the gains from regional coordination.²⁷ Any regional agreement would need to cover all relevant regional players, as the returns to tax competition rise for abstaining countries. Of course, regional agreements work only if spillovers within the region are large relative to those vis-à-vis countries outside the region. There is hence

²⁴ Guidance on tax treaty policy frameworks is provided in PCT (2021).

²⁵ Article 12B also provides for an optional net basis taxation mechanism for MNEs.

²⁶ For an overview on the economics of tax coordination, see Keen and Konrad (2013).

²⁷ For instance, countries in the same region might share a landscape that is similarly attractive for tourists. Coordination on the taxation of tourism would then harbor significant revenue potential, with little risk of tourists choosing instead a remote location.

scope for regional cooperation beyond the IF agreement, addressing regional profit shifting and tax competition pressures, for example by agreeing on a regional minimum statutory tax rate.²⁸

COUNTRY-LEVEL REFORM PRIORITIES

Countries that joined the IF agreement will need to decide on optional provisions, prepare for treaty changes, put agreed policies into domestic law, and prepare for implementation. All countries, including those that have not joined, will need to consider how to modify their domestic policy frameworks—taking into account the policy changes by others. This section discusses the various country-level responses to the new global environment, with a focus on LICs. This is an area where IMF CD supports countries to navigate their optimal policy responses and to build capacity for implementation.

A. Opting In or Opting Out

32. Regarding P2, countries need to choose whether to adopt the different interrelated rules or not. This is not the case for P1, which is effectively mandatory for those signing the implementing convention. Whether and when adoption of P2 is strategically expedient depends on a country's characteristics, as well as implementation by other countries:

- Only if a *critical mass of countries in the IF agreement* adopts the GloBE rules will P2 have a meaningful global impact. For instance, if countries with significant MNE headquarters adopt the IIR, this will ensure near worldwide coverage of the minimum tax. Even if this were not the case, if most countries with MNE operations adopted the UTPR, which acts as a back-up rule, this would ensure near universal coverage. Since large capital exporting countries are among the main supporters of the global minimum tax, their adoption might be expected (and agreement on the EU Directive is an important step in this direction).
- *Capital importers* have a very strong incentive to adopt the QDMTT once the major capital exporters adopt the GloBE rules (Box 3). Indeed, this rule ensures that any top-up tax paid by the MNE will be collected locally, rather than in another jurisdiction. There is no downside, as a QDMTT will only apply in cases in which the minimum tax would otherwise be charged by another jurisdiction. Moreover, it does not add compliance costs, as the affected MNEs need to undertake the calculations irrespective of the QDMTT. In terms of timing, countries that are concerned about the impact of higher taxes on foreign investment may want to wait with

²⁸ Examples of existing regional corporate tax coordination attempts have had mixed success. The EU has sought to harmonize the corporate tax base and rate across member states (see Crivelli and others 2021), but progress has been limited to administrative matters, the elimination of double taxation, anti-tax avoidance measures, and more recently, the implementation of P2. The West African Economic and Monetary Union (WAEMU) and the Economic and Monetary Community of Central Africa (CEMAC) introduced legislation that harmonizes (parts of) the tax base and agreed on a minimum CIT rate of 25 percent. However, tax competition continues through special tax regimes, which were not covered (Mansour and Rota-Graziosi 2013). The East African Community has prepared a multilateral tax treaty to harmonize cross-border taxes, but it still awaits ratification, and has so far made only modest progress on domestic tax harmonization (mostly in the indirect tax area).

QDMTT adoption until GloBE adoption is widespread. Yet, these countries are well advised to begin the preparatory work immediately.

- *Countries that are not signatories of the IF agreement* are also affected by P2. If residence countries adopt the IIR, for instance, it will apply to MNEs in all countries alike; and the UTPR, which can be implemented by denying deductions, can similarly be applied with regard to profits in non-signatory countries. Non-IF members and non-signatory countries should therefore consider adopting the QDMTT or similar provision, although there is some uncertainty as to whether such tax would be recognized by others as qualified.
- *Investment hubs*—those with significant financial inflows, but little real economic activity—might lose a significant portion of their tax base due to reduced profit shifting. While it would still be rational for these countries to adopt the QDMTT to ensure that any revenue from remaining capital imports accrues to them, the reduction in inflows might cause a major loss of business. If related services to the sector are important to their economy, deep structural reforms will be needed.
- *Developing countries* should reconsider their current tax treaties to identify scope for benefiting from the STTR, including provisions that would allow for taxation of cross-border services, and capital gains.²⁹

Box 3. Why Countries Should Adopt the Qualified Domestic Minimum Top-Up Tax

Countries with low-taxed profits that will be subject to taxation under GloBE rules have a strong incentive to raise taxes to ensure that they themselves capture the revenue. This box explains why this is best done by adopting a QDMTT.

First, the QDMTT has the same base as the other GloBE taxes, i.e., it applies only to firms exceeding the size threshold and is levied on profits after deducting the substance-based income inclusion. Hence, it does not levy taxes on profits that are not subject to GloBE taxes elsewhere.

Second, the QDMTT directly prevents the application of any other GloBE taxes. Domestic taxes would only do so if they pushed the ETR above 15 percent. The ETR, however, is calculated without applying the substance-based income exclusion; it is the ratio of tax to *total* profit. This ratio can be lower than 15 percent—triggering tax liability elsewhere—even though taxes as a share of *excess* profits (profits less the substance-based exclusion) exceed 15 percent. A QDMTT avoids this and therefore dominates other tax increases (see Devereux, Vella, and Wardell-Burrus 2022).

While QDMTT adoption is recommended for all countries, other ways of raising domestic taxes might still be desirable too. For instance, countries may want to review their tax incentives, which often have low effectiveness and efficiency but have been introduced due to tax competition. Such reforms should come in addition to, not instead of, QDMTT adoption.

One difficulty in collecting revenue from the QDMTT could be stabilization clauses in tax agreements with MNEs. These clauses may preclude the addition of new taxes. However, the imposition of the QDMTT does not raise the MNE's global tax liability, as they are otherwise covered under another country's IIR or UTPR, which are not bound by the stabilization clause. Governments should therefore try to renegotiate an exception for the QDMTT with the MNE, merely to pre-empt collection by other states.

²⁹ See also the alternative UN Model provisions discussed above.

B. Corporate Tax Rates

33. **Countries may consider raising their CIT rates, given reduced competitive pressures.**

The higher minimum tax rate on in-scope profits will reduce pressures of tax competition, as discussed earlier. The empirical tax competition literature suggests that corporate tax rates are strategic complements, that is if other countries raise their tax, a country will be inclined to do the same. Even for low-tax jurisdictions, this can render the minimum tax welfare improving, provided they have a sufficiently large domestic tax base (Hebous and Keen 2021). However, those currently with CIT rates below the minimum could also be inclined to combine the introduction of a QDMTT (which would collect more revenue from in-scope profits) with a lower CIT rate on profits that are out of scope of the minimum tax (to compete for investment and profits) (Devereux and others 2022).

C. Tax Incentives

34. **The global minimum tax under P2 will reduce the effectiveness of many tax incentives in attracting FDI.**

While tax incentives for corporations—such as tax holidays, reduced rates, or exemptions—are often ineffective in attracting new investment and impose costs on society that go beyond the direct revenue forgone (IMF and others 2015), many LICs feel pressured to compete for internationally mobile capital by offering them. P2 will change the cost benefit trade-off of offering such incentives as the minimum tax may impose an additional tax on FDI, rendering a share of the revenue forgone by host governments ineffective in attracting investment and thus redundant.

35. **Due to the specifics of covered tax and in-scope income definitions, the precise impact will vary across different incentive regimes** (Box 4).

P2 will apply only if the incentive regime reduces the measured ETR below 15 percent and if the accounting profit of the incentivized entity is above the substance-based income exclusion. Not all incentives are treated equally for this computation. For instance, accelerated depreciation schemes or immediate expensing—which are relatively efficient approaches to reducing companies' METRs—will have a limited impact on computed ETRs as deferred tax adjustments are used in computing covered taxes. Refundable tax credits, on the other hand, will be treated as income (the denominator of the ETR computation) and hence reduce the ETR to a lesser degree than non-refundable tax credits that reduce covered taxes (the numerator of the ETR computation).

36. **The income exclusion rules will further strengthen the relative benefit of providing cost-based tax incentives.**

Eligibility for corporate tax incentives is increasingly tied to substance-based requirements, such as additional employment or capital spending. This trend has been reinforced by international initiatives, such as the IF's scrutiny of preferential regimes, and will be further supported by the design of P2: labor and capital-intensive projects will enjoy a larger tax-shield, making the (foreign) application of the minimum tax less likely.

Box 4. Assessing the Impact of Pillar 2 on Tax Incentives

Countries will need to assess the impact of P2 on their incentive regimes (Beer and others forthcoming-a).¹ The starting point is an assessment of the impact on current investment activities. While the steps to do this are relatively straightforward, data limitations in many countries can complicate the exercise:

- **Determine the number of in-scope MNEs.** Only companies belonging to multinational groups with annual revenues of more than €750 million are currently affected and public CBCR reports are a useful starting point to assess their quantity. However, such information is often incomplete and should be complemented by administrative information or publicly available ownership information from commercial databases like ORBIS or public filings. Once internationally active groups with activity above the threshold have been determined, excluded entities, such as state-owned enterprises or the transport sector, should be removed.
- **Calculate the ETR on profits following the GloBE model rules.** This requires aggregating the covered taxes and book profits for all subsidiaries in a country that operate within the same group. The starting point for the computation of covered taxes are taxes charged on business income, most prominently the CIT and rent taxes. Taxes charged on gross income (such as royalties or DSTs), in contrast, are not included. Subsequently, adjustments to recorded tax payments are necessary, for instance, to account for the treatment of timing differences or non-refundable tax credits (which reduce covered taxes). Similarly, book profits need to be adjusted for refundable tax credits. The ETR is the ratio of covered taxes to accounting profits.
- **Determine additional tax from P2.** Where the ETR is below 15 percent, the minimum tax applies to the difference between 15 percent and the effective rate, but the base for the tax is the excess profit, equal to the amount by which the book profit exceeds 8 percent of tangible assets and 10 percent of payroll (each declining to 5 percent over 10 years). Importantly, information on wages is often less complete than for assets in public databases and the CbCR data.

¹ See also UNCTAD (2022), O’Sullivan and Cebreiro-Gomez (2022) and OECD (2022d) on how to adjust tax incentive regimes in response to P2.

37. While an assessment of existing investments is critical, the impact on future investments may be even more important. Existing investors may reevaluate the optimal size of their undertakings, which is affected by the METR. While many firms will see the tax on the marginal investment increased, the substance-based income exclusion could lead to a reduction of METRs for others. For some existing firms, an optimal response could be to scale up their investments in low tax jurisdictions. For prospective investors, in contrast, what matters is the share of pre-tax profit that is collected in tax—the average effective tax rate (AETR)—and the minimum tax will unambiguously increase this quantity where the ETRs were below the GloBE rate previously. Moreover, while the €750 million threshold appears high, a large and growing share of investment projects in developing countries is executed by MNEs exceeding this threshold (UNCTAD 2022).

38. Governments should revisit and potentially update their investment promotion frameworks now. The international tax reform harbors large governance dividends which call for immediate action, even if P2 is only partially adopted or the covered tax base ends up small. Governments need to revisit policies that introduce legal barriers, such as stabilization clauses or excessive scopes of bilateral investment treaties, that could hinder leveraging P2 reforms. They need

to undertake comprehensive evaluations of their investment promotions and potentially redesign incentives to maximize their effectiveness, such as by focusing on cost-based incentives. As noted, the introduction of a QDMTT would reduce the risk of redundant tax expenditures and prevent taxes from being topped up elsewhere.

D. Tailored Base Protection in LICs

39. To protect their tax base against erosion, LICs are advised to continue to use tailored anti-tax avoidance rules. Empirical studies suggest that LICs are relatively more vulnerable to profit shifting (Crivelli and others 2016; Fuest and others 2011). Some of the international guidance might be too onerous for them. Their distinct problems and capacity limitations call for tailored and simplified solutions that strike a balance between being administrable without infringing upon legitimate business undertakings. Any such additional measures should be rules-based to achieve greater tax certainty and designed to mitigate distortions. IMF (2014, 2019) discuss the following five tailored approaches against base erosion that are of special relevance for LICs, and are reconsidered here in light of recent developments:

- *Alternative minimum taxes (AMTs).* Over 50 countries globally have them, based on, for example, turnover or assets. They have been effective in supporting revenue (Aslam and Coelho 2021) and when applied to inbound investment can counter erosion of the CIT base. These AMTs would need to operate as substitutes for CIT to be recognized as covered taxes under P2 (gross taxes as such do not qualify), which is possible even where the AMT uses simplified approaches. Complexities can arise as domestic AMTs evolve and depart from the P2 framework.
- *Safe harbors.* Traditional transfer pricing practices will be retained for the taxation of a considerable share of MNE activity, irrespective of implementation of the IF agreement. Following a similar approach to proposals under consideration for Amount B, safe harbor rules can simplify the application of the arm's length principle by prescribing expected returns for specific transactions or entities. They have most commonly been adopted in the form of deemed pricing approaches applied to commodities and as a simplified approach for low value adding services. PCT (2017) argues that (rebuttable) safe harbors may be appropriate for a wide range of sectors including manufacturing, sales and distribution, and a range of service providers. Broad endorsement for the Amount B proposal, country experience, and an analysis of efficiency costs associated with simplified approaches across sectors (Beer and others 2022) tend to support this assessment. Importantly, in developing economies, where limited public information exists for transfer pricing benchmarking studies, safe harbors may allow for better leveraging administrative data.³⁰ However, simplified approaches can lead to over- and under-taxation. Where safe harbors are considered, their design thus needs to be carefully calibrated to safeguard a reasonable portion of the profits in LICs and minimize tax planning opportunities.

³⁰ Information submitted to tax administrations is not normally usable by tax administration for transfer pricing comparability analysis since it is confidential and cannot be disclosed to other taxpayers. However, such information can be used to determine appropriate safe harbor ranges.

- *Limitations to the deductibility* of interest expenses and possibly other payments. LICs also have a sovereign right to implement domestic limits to deductions, which operate like a targeted domestic minimum tax. They can apply to interest and possibly other common base eroding payments, such as cross-border services fees, some of which cannot be otherwise taxed through WHT or directly to the offshore recipient (for instance, because of tax treaty constraints). The idea of limiting deductions was reflected in earlier iterations of the UTPR³¹ but was given lower priority in final rule order. It was embodied in certain forerunner domestic tax rules, such as the U.S. BEAT. The measures could deny deductions for, or otherwise tax, local resident taxpayers (to maintain consistency with existing double tax treaties), and take into account any foreign tax actually payable on the payment in the jurisdiction where it is received.³² LICs should remain cautious about agreeing—whether bilaterally or multilaterally—to constrain their ability to enforce their source country taxing rights, including by agreeing to allow another country’s outbound measure—CFC like rules—to apply in priority to their own inbound measure.³³
- *Offshore indirect transfers of assets.* LICs should tax offshore indirect transfers and location-specific rents more broadly, and secure taxing rights over them—supported by applicable tax treaties—to achieve a more efficient and sustainable tax base (PCT 2020). These seem intended to be excluded from the global minimum tax under P2, thereby undermining the primary right of source countries to tax them.³⁴
- *Double tax treaties.* LICs should ensure that potential benefits outweigh costs before embarking on treaty negotiations and should periodically assess whether existing treaties remain appropriate.³⁵ LICs should—consistent with previous Fund staff advice—exercise great caution, and have sufficient capacity, before entering into tax treaties to ensure they do not cause substantial revenue losses and produce little increase in FDI. LICs should pay close attention to the terms and conditions of their tax treaties. For instance, they should avoid tight restrictions on the use of WHTs on foreign payments (for example, on royalties, interest, or cross border services). LICs should therefore prioritize, for example, (i) minimum WHT rates for dividends, interest, royalties, and technical service fees (with robust definitions for each); (ii) the UN Model definition of PE, also including a services PE; (iii) retaining the right to tax indirect transfers of assets; and (iv) adopting appropriate anti-abuse provisions.

³¹ The shift in the UTPR design under P2 from being applied to “payments” (actually paid/deducted by domestic taxpayers in the source country) to being applied to undertaxed group “profits” more broadly (which are made across an MNE group) raises—as noted by many commentators—distinct tax treaty/legal issues which need to be resolved to ensure their efficacy.

³² See Waerzeggers, Hillier, and Aw (2021) for legal design considerations relating to inbound tax measures.

³³ This also includes the potential for the QDMTT (source country taxing rule) to apply after applicable CFC taxes (residence country taxing rule).

³⁴ However, this could possibly be overcome by taxing gains triggered by offshore ownership sales through a deemed disposal mechanism for the local asset owning entity that was subject to the change of control (see taxing Model 1 in PCT (2020)).

³⁵ On potential costs and benefits of tax treaties see PCT (2021).

E. International Tax Administration

40. LICs tax administrations should continue to reinforce their capacities to address international tax risks. The IMF has developed an analytical toolkit to help tax administrations evaluate international tax risks, assess capacity gaps, and design and implement improvement strategies. The toolkit, called the Framework for International Tax Administrative Strengthening (FITAS), focuses on considerations relevant to strengthening institutional capacity to manage international tax risk. It uses a questionnaire approach to provide a diagnostic assessment of the administration's current progression toward good practice in managing its specific international tax risks. Ratings in each of the categories in the FITAS offer insight into design and implementation gaps. Subsequent, a strategy can be developed to address these gaps, based on key success factors.³⁶ Subsequent capacity development can support implementation.

F. Digital Service Taxes

41. 31 countries, including 17 low-income and emerging market economies, have adopted unilateral measures to tax digital services, including DSTs.³⁷ These can be seen as a shortcut to overcoming the failure of the current international tax architecture to recognize taxing rights of market countries over businesses that rely on digital means to serve a large customer base without physical presence. Compared to P1, revenue collections and expectations for DSTs are also modest, ranging from 0.01 to 0.02 percent of GDP (IMF 2021). Their design and implementation are simpler, but they come with coordination challenges, trade tensions, problems associated with ring fencing, risk of double taxation, and unclear welfare effects.

42. Unilateral measures can take different forms and trade-offs for policy makers have been reviewed by staff (IMF 2019, Aslam and Shah 2021, Dabla-Norris and others 2021). Approaches range from narrowly applying WHTs on select purchases from non-residents (as in the UN's Article 12B above) to targeting all revenue generated from the delivery of specified digital services to a jurisdiction's residents. WHTs reduce collection costs, but also facilitates avoidance by rechanneling payments through countries without such tax. Broader DSTs sometimes focus on online advertising and marketing only (e.g., Austria), but often go further and also cover digitally-delivered content (e.g., Türkiye). The African Tax Administration Forum (ATAF) proposes adoption of a hybrid model to minimize strategic responses.³⁸ Some countries opted for the concept of a digital PE, which establishes a taxable presence once a global and/or local sales threshold is crossed. While such an approach overcomes the "PE problem" (i.e., the lack of taxing rights in the absence of physical presence) and could be desirable more generally (Leduc and Michielse 2021), direct

³⁶ Revenue authorities are advised to adopt a tailored approach to mitigate their specific international tax risks, combining appropriate regulations with preventive actions, active monitoring, enforcement activities and guidance and interpretative rulings

³⁷ As of December 2022 (KPMG 2022). Four other countries have prepared draft legislation and six have announced an intention to do so.

³⁸ Using the higher amount between direct payments and the apportioned global revenue as the base (ATAF 2020).

taxation of profits remains challenging in the context of hard to value intangibles, which drive many digital business models. As a result, taxation of the digital PE may also be on a gross revenue basis (e.g., Nigeria), resembling the response to challenges of sharing in the rents from resource extraction, where taxation of turnover (royalties) is common to overcome capacity constraints in monitoring the tax base (Aslam and Shah 2021).

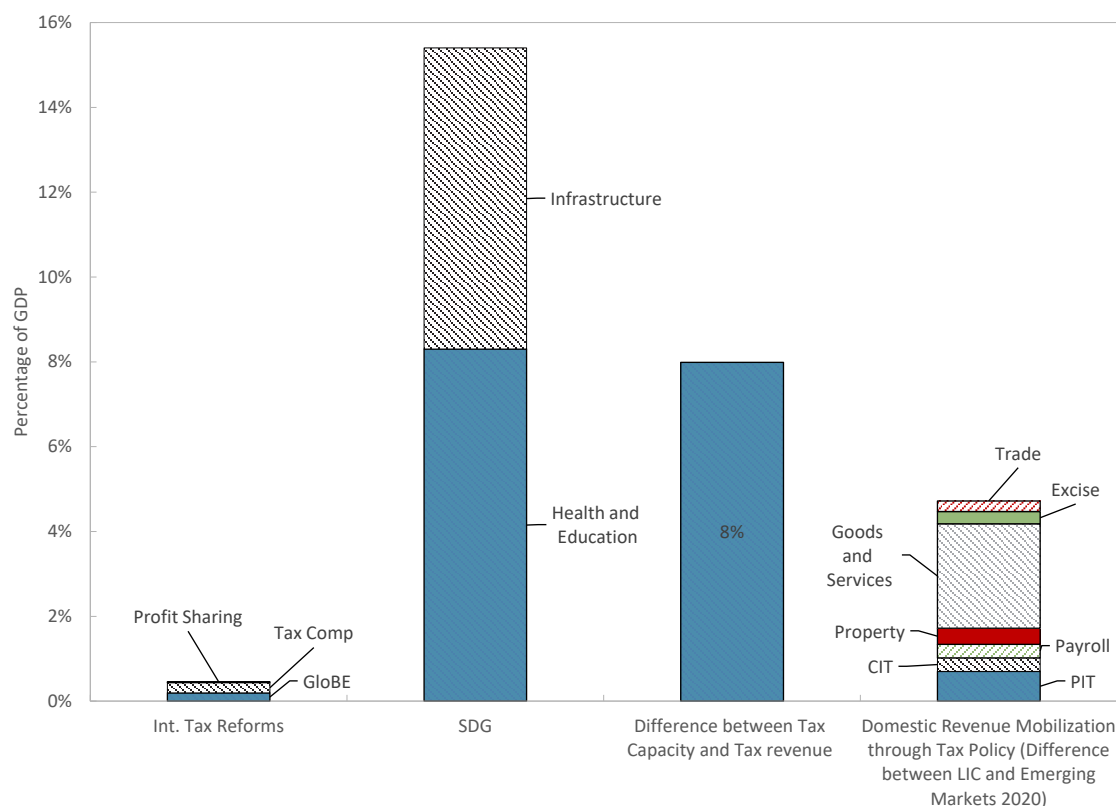
43. Distortions of DSTs depend on market structure. While the statutory incidence of DSTs is on service providers, a large share of highly digitalized MNEs report pass-through of the associated costs,³⁹ potentially increasing prices and lowering demand. Distortions arise from taxation of gross revenue, potentially disrupting loss-making innovative business models, and from the wedge that is driven between activities in and outside of scope of DSTs (Aslam and Shah 2021), potentially disfavoring efficiently targeted online advertising for example. However, production decisions of highly digitalized business with low or no variable costs may not be influenced at the margin (Köthenbürger 2020).

G. Revenue Mobilization Agenda

44. While an important step in the effective taxation of MNEs, international tax reforms cannot be expected to provide the bulk of the additional revenue needed by developing countries. Global revenue from the 2-pillar reform is estimated at 0.15 percent of GDP. When including the estimated second-round effects from reduced tax competition, this might rise to around 0.4 percent of GDP in the longer term. If a proportional share of this revenue flows to LICs, this would provide a welcome contribution to their revenue objective. However, the impact is dwarfed by the overall revenue challenge of these countries (Figure 5). For example, to meet the Sustainable Development Goals (SDG) in five key areas, Gaspar and others (2019) estimate expenditure needs in LICs of nearly 16 percent of GDP (and a significant share of this will need to come from taxation); Benedek and others (2021) find that the pandemic has further increased this number. Alternatively, we can look at the gap between current revenues and so-called tax capacity—which is the predicted maximum taxation in an economy given its macroeconomic, demographic, and institutional features. Estimates based on Benedek and others (2021) suggest a potential revenue increase in LICs of 8 percent of GDP. Finally, the current revenue ratio in LICs can be compared with that in emerging market economies as an aspirational level. Such a comparison suggests a revenue potential of around 5 percent of GDP.

³⁹ In a survey of 219 highly digitalized MNEs, 28 percent of respondents indicated that they absorb DST costs, whereas the rest indicated pass-through to consumers, suppliers, or both (WEF 2021).

Figure 5. Revenue Needs or Potential of Developing Countries Compared to Revenue Estimates from International Tax Reforms



Sources: IMF staff estimates, SDG: Gaspar and others (2019), Tax Capacity: Benedek and others (2021).

45. Several options present themselves to raise revenues in LICs, both in tax policy and revenue administration. These reforms could be embedded in a medium-term revenue strategy along the lines of the concept developed by the PCT—which is being implemented by several countries (PCT 2022). The options for reform should account for the quality of measures in terms of supporting green and inclusive growth (De Mooij and others 2020, Verdier and others 2022). Some promising avenues in tax policy include:

- *Value-Added Tax (VAT) reform*, by reducing exemptions and removing reduced rates. This has significant revenue potential in many LICs. For instance, the average revenue in emerging market economies is 2 percentage points of GDP higher than in LICs. Where such reforms raise equity concerns, it should be noted that social expenditure financed from VAT reform (such as social transfers, health care and education) can offset the impact on the poor.
- Advancing *specific excises* through a combination of better design, improved enforcement, and higher tax rates on select products such as alcohol, tobacco, unhealthy foods, passenger vehicles, fuel, and carbon emissions. This also helps address externalities from pollution and improves health outcomes.

- Enhancing *fiscal regimes for extractive industries* in resource-rich countries can help secure an appropriate revenue stream from natural resource rents, for instance, in the form of a royalty combined with a dedicated resource rent tax (Daniel and others 2019, Baunsgaard and Devlin 2021).
- Strengthening the progressive *personal income tax*, while challenging in countries with high informality, is essential for an effective redistributive system. There is often significant revenue potential from rationalizing tax expenditures (IMF 2017).
- Making greater use of *recurrent real property taxes*, by investing in registration using new digital technologies, expanding bases, and increasing rates. While property taxes generally raise less than 0.1 percent in LICs, they average about 0.5 percent of GDP in emerging markets.

46. Administrative measures to raise revenue include:⁴⁰

- Putting in place *management and governance arrangements* to ensure (i) independence from political direction (autonomy), (ii) accountability and transparency practices, which help to build public trust, (iii) a rules-based decision-making framework, (iv) high-levels of integrity, (v) agile management models, including a sound organizational design for an effective delivery of strategies, and (vi) a sound result-based management approach.
- Ensuring a solid *foundation of core tax and customs administration functions*, such as registration, filing, payment, and correct reporting. Good management and governance are essential, including improved internal assurance mechanisms, effective external oversight, integrity assurance, and improved transparency.
- Implementing a comprehensive strategy toward *compliance improvement*, for example, to address tax evasion by high-wealth individuals, professionals, or self-employed and to address VAT compliance gaps (which are often high in LICs). This includes data-driven revenue administration procedures through improved digitalization and the implementation of effective risk-based compliance management strategies.
- Advancing the *digital transformation* of revenue administration through holistic reform. This goes beyond electronic registration, filing and payments and includes using data for risk-based compliance. Digitalization can also help mitigate arrears and reduce administrative and compliance costs.
- Streamlining and securing *customs* clearance and international transit procedures and implementing custom valuation in line with WTO standards.

⁴⁰ See IMF (2015), Azcarraga and others (2022), and Brondolo and others (2022).

A LOOK INTO THE FUTURE

While recent and ongoing reforms reduce some of the pressures on the international corporate tax framework, the system will likely evolve in dealing with remaining issues, unforeseen obstacles, and continuing pressures from tax competition and profit shifting. High complexity might further call for simplification or special options for LICs. Ultimately, the future system will likely be driven by robust tax principles, reflected in fundamental reform proposals. This section offers a guide toward thinking how this could shape the future system—with a concrete agenda for developing countries.

A. Reform Directions

47. Mounting pressures have induced fundamental reform of the principles underlying the international corporate tax system. Among the key principles for allocating taxing rights and attributing taxable profits of MNEs, the source principle tends to be the least robust, followed by the residence principle, while the destination principle is likely the most stable (De Mooij, Klemm, and Perry 2021).

- *Source-based taxation* is most vulnerable to spillovers. Operationalizing source taxation through the arms-length principle is complex and sometimes arbitrary, which makes it vulnerable to profit shifting. Alternatives such as formula apportionment or fixed margin regimes can help address these challenges and are included in P1. However, capital mobility also creates real tax spillovers and fuels tax competition. Attempts to sustain source-based taxation therefore requires international coordination to mitigate these spillover effects. This is done through some of the BEPS action items and the global minimum tax under P2. Strengthening source taxation is particularly important for developing countries who are capital importers.
- *Residence-based taxation* is also vulnerable to spillovers as the choice of residence is mobile too. As a result, residence-based (“worldwide”) taxation regimes have been replaced by source-based (“territorial”) systems. The residence principle is relatively more important for advanced economies who host most MNE headquarters. International coordination with respect to CFC rules and outbound minimum taxes (like the IIR) help sustain the residence principle. Considering the residence principle from the ultimate corporate owners’ (stockholders’) perspective could create a system in which the place of the headquarters becomes irrelevant for tax purposes (Nakayama, Perry, and Klemm, 2021). However, its enforcement would require considerable further advances in information exchange, information technology, and mark-to-market accounting.
- *Destination-based taxation* is least susceptible to spillovers since consumers are the least mobile. In the absence of any tax coordination, we therefore expect to see a gradual movement toward destination-based taxes, for example, through a shift in the tax mix from corporate taxation toward VAT, or through the introduction of DSTs and similar taxes. International coordination can provide for a more orderly transition toward destination-based taxation, which is envisaged

under P1. Aside from implementation through formula apportionment, the destination principle can also be implemented through border adjustments, such as under a destination-based cash-flow tax (DBCFT), which avoids difficulties with identifying the final consumer.⁴¹ However, such a reform would create a large redistribution of revenues (Hebous and Klemm 2021) and introduction by just a few countries would create asymmetric spillovers on others.

48. The most obvious deepening of international tax cooperation is by expanding the scope of the reforms envisaged in the IF agreement. The IF agreement is limited in scope and creates a dual international tax system where the new regime applies to in-scope MNEs, while the old system prevails for others. This duality may come under pressure from firms operating close (or not so close) to the thresholds, who can try to opt for the system most attractive to them, for example, by changing the group's ownership structure (or new firms choosing an alternative path in ownership). Ultimately, the dual regime may evolve toward the most robust system. The pillars may thus evolve as follows:

- *P1:* To further strengthen destination-based taxation based on formula apportionment, the very high turnover threshold for in-scope firms in P1 could be reduced further than the currently foreseen halving 7 years after implementation. The scope of P1 could be further expanded by raising the 25 percent of residual profit that is reallocated, or by reducing the 10 percent return on sales to calculate routine profit (which provides for a fairly high exclusion compared to what is generally perceived as a normal return on investment). Also, the exclusion of regulated financial services might be reconsidered (while taxing rights for extractive industries remain most naturally in the country where the natural resources are located).
- *P2:* The interrelated rules help sustain the source and residence-based taxes by mitigating cross-border spillovers. P2 could be strengthened in this regard by removing the substance-based income exclusion, which would also address the concern that firms are incentivized to shift real investment and staff into lower tax countries to expand the tax shield. The exemption for international shipping in P2 could also be lifted, as it forgoes the opportunity to address low tax rates⁴² in a sector marked by intense tax competition (Falcao 2020). Also, raising the minimum tax rate above 15 percent would support the robustness of source and residence-based taxes that currently exceed 15 percent.

49. The design of the corporate income tax itself might also be subject to change, with a distinct treatment of normal and excess profits. Interestingly, both pillars in the IF agreement make a distinction between two forms of income. In P1, the routine return of 10 percent of sales is excluded from Amount A; in P2, the substance-based income exclusion is exempt from top-up tax. Instead of these ad hoc exemptions, the system could evolve into one distinguishing more directly

⁴¹ While the destination-based cash-flow tax is not on the agenda of any country, it is equivalent to a value-added tax increase in combination with a labor tax cut and a reduction in the CIT rate (see Devereux and others 2021, Chapter 7). This combination is pursued by countries, although not always simultaneously.

⁴² Commonly presumptive "tonnage" tax regimes are applied, leading to effective tax rates of just 7 percent for the largest operators in the industry (Merk 2020).

normal returns to capital and excess profits, or “economic rent.” This could be achieved by introducing an allowance for corporate equity (ACE),⁴³ which would be compatible with formula apportionment (and hence P1) and can be recognized under minimum taxes (and hence P2). A more radical approach would be a DBCFT, which would also exempt the normal return from taxation (through expensing of investment).

50. Excess returns could also be subjected to a higher tax rate. This resembles the idea of excess profit taxes (EPTs), which are receiving increased interest to support fiscal recovery from the pandemic and to address the fiscal implications of the recent energy price surges.⁴⁴ While such tax systems have not been adopted on a large scale due to fear for outbound profit shifting, international coordination could alleviate this concern and open options for their increased use. For instance, Hebous and others (2022) estimate that a 10 percent EPT on the globally consolidated accounts of multinationals (on top of the current CIT), with the EPT base being allocated using sales, could raise global revenue by 16 percent of current CIT revenues.

B. An Agenda for Developing Countries

51. A new reform program—or “third pillar”—targeting lower income, capital importing economies could build on and go beyond the scope of the initial BEPS agenda and the two-pillar reform. This could also reflect outcomes and ongoing discussions in the UN’s Tax Committee—or resulting from the recently adopted UN Resolution on international tax cooperation.⁴⁵ As noted above, countries can and should move unilaterally to strengthen anti-abuse provisions and seek to revise their treaty policy to better protect and expand their source taxing rights in line with advice by the IMF (2019) and PCT (2017, 2021). Experience over the past decade suggests, however, that countries are often concerned about losing competitiveness by deviating from established practices and standards. Approving such measures in the IF by publishing recommendations on their design as part of a new work-program, or by coordinating broader reform initiatives, for instance to foster changes to particularly imbalanced tax treaties⁴⁶ (Box 5), could help overcome this barrier.

⁴³ The ACE would also remove the corporate debt bias that inherent in current corporate tax systems.

⁴⁴ Recent proposals for EPTs differ in that they are ring-fenced (e.g., to the energy sector), temporary and implemented ex-post (i.e., after the profit has been made). This can be distortive and is legally and administratively challenging (Hebous and others 2022).

⁴⁵ On November 23, 2022, the UN General Assembly adopted a resolution calling for negotiations to start at UN headquarters on ways to improve international tax cooperation, including possibly by developing a UN framework or instrument, and requested the UN Secretary-General to deliver a report on existing arrangements and potential next steps to be presented to the General Assembly in September 2023 (Resolution A/C.2/77/L.11/Rev.1).

⁴⁶ See Hearson (2021) for the drivers of imbalanced treaty conclusions by capital importing economies.

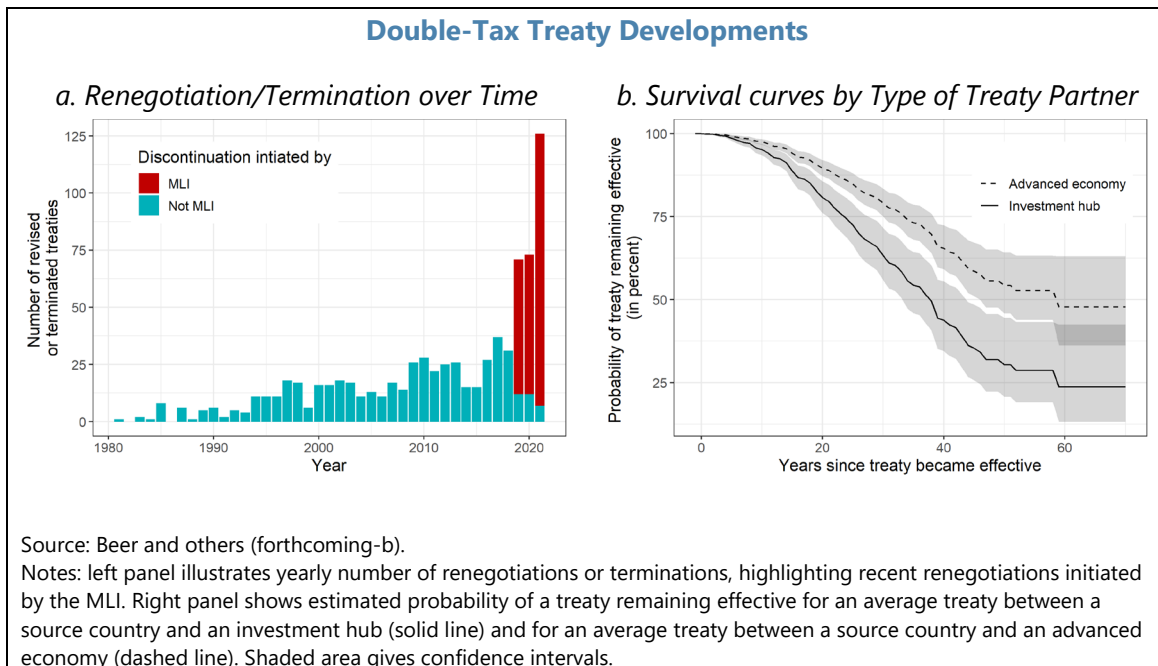
Box 5. Treaties Ripe for Revision?

Low-income countries have revised an important share of their double tax treaties. Out of more than 1,500 treaties concluded between source countries (defined to include LICs as well as middle-income countries) and advanced economies or investment hubs (defined as countries where inward FDI stocks exceed 150 percent of GDP), 30 percent have been renegotiated and 3 percent were terminated between 1980 and 2021. The trend of treaty termination or renegotiation has accelerated in recent years, especially through MLI ratifications (Figure a).

Empirical analysis sheds light on the drivers of treaty revision. A survival analysis that focuses on pre-MLI discontinuations¹ (Beer and others, forthcoming) suggests that both country-specific variables and the specifics of treaties determine the average lifetime of a bilateral treaty:

- Where source countries' treaty partners are characterized by low statutory CIT rates and large inward FDI stocks, the average number of years a treaty remains effective is reduced.
- Greater restrictions to withholding taxation on interest payments and weaker PE definitions make treaties more prone to revision. Also, the absence of two newer additions to the model treaties—provisions safeguarding the right to tax capital gains on indirect transfers of assets and anti-abuse clauses—are associated with a greater likelihood of renegotiation or termination.

Several current treaties are likely to be renegotiated or terminated soon. In the past, unbalanced treaties that imposed greater restrictions on source country taxing rights were more likely to be discontinued. Using this information to predict survival of existing treaties, we find that 19 percent of treaties with investment hubs will be renegotiated or terminated in the next 10 years. In contrast, the probability of treaty discontinuation with an advanced economy in the next 10 years is roughly half that magnitude at 10 percent.

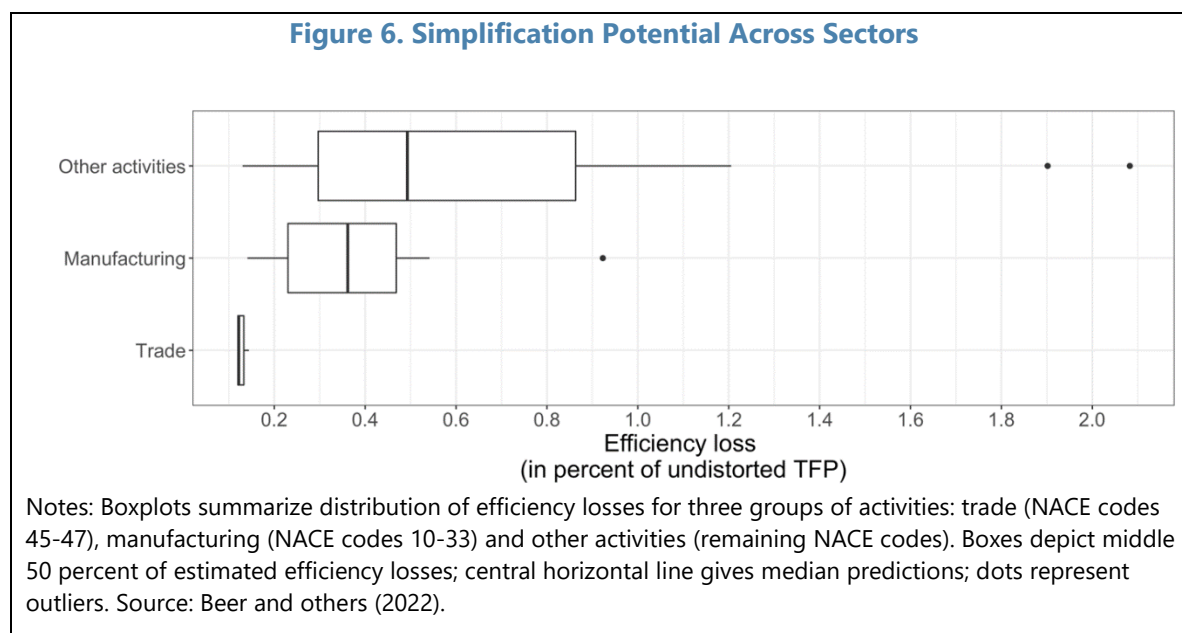


¹ The MLI, which is not included among the renegotiations covered by our analysis, allows countries to amend many treaties at once. Our analysis suggests that treaty renegotiations and terminations are often motivated by concerns about clauses that are unaffected by the MLI.

52. Making international tax rules commensurate with lower capacity administrations remains an important and unresolved priority that would benefit from expanded international guidance.

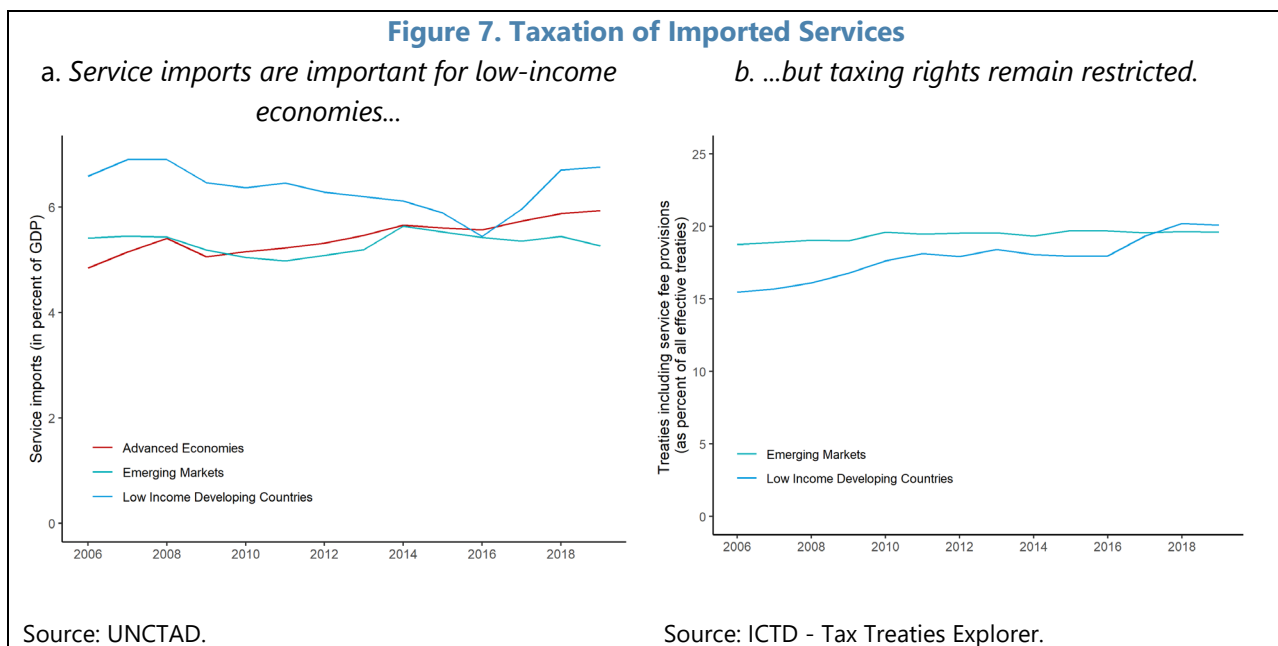
While the two-pillar reform can be interpreted as a partial retreat in the strict application of the arm's length principle, administrators will remain confronted with its practical challenges, conceptual uncertainties, and associated base erosion risks (IMF 2019, Schatan 2021). A range of options to deal with these challenges have been put forward over the past decade and partly inform ongoing reform discussions in the IF.

- Most importantly, albeit likely narrow in scope (as argued by ATAF 2021), the consideration of using fixed margins for some distribution and marketing activities under Amount B supports the idea that simplified methods can be acceptable alternatives to case-by-case benchmarking exercises, at least for a subset of transactions or entities within an MNE group. While simplified approaches introduce variation in ETRs at the subsidiary level (even in the absence of statutory tax rate differentials), a comparison of associated efficiency costs suggests that there is scope to explore their application to a wider range of sectors and activities (Figure 6).
- Another example of simplification measures that could benefit from guidance and coordination—as opposed to new standards—are mechanical deduction limitations for potentially base-eroding payments,⁴⁷ based on the model introduced for interest deductions in BEPS Action 4. Profit shifting from related party financing could be more dramatically contained by an agreement to treat all related party interest as equity for tax purposes (Schatan 2021).



⁴⁷ For instance, mechanical deduction limits for central purchasing fees and commissions included in the regional corporate income tax directive in the Central Economic and Monetary African Community (CEMAC) or the use of mechanical limits for royalty payments as considered in PCT (2017).

53. Improving international guidance on the scope of withholding taxation, in particular with respect to services, could become a central component of a future reform pillar serving developing countries. The taxation of services is of critical importance for source countries, beyond digitalization and consumer facing activities. Most developing economies are service importers, and these imports are comparatively important (Figure 7a). Their taxation has been a major source of disagreement in international taxation, with diverging interests best illustrated by Article 12A of the UN Treaty Model retaining the right to levy final WHT on cross-border service payments, a provision absent from the OECD Model Treaty.⁴⁸ Developing countries have been facing an uphill battle when seeking to negotiate service fee provisions in their tax treaties (Leduc and Michielse 2021) with only around 20 percent of source country treaties covering these (Figure 7b). Ongoing reforms come with opportunities for reinforcing source taxation, and the fluidity of international negotiations may provide an opening to (re)visit proposals that align with developing economy priorities (Picciotto 2021). Using the template of the MLI to initiate another multilateral initiative could help facilitate treaty changes to ensure retention of meaningful rates on interest, royalties, and income from services and capital gains.⁴⁹ For instance, such a coordinated exercise could seek to target and facilitate renegotiations of particularly unbalanced treaties.



54. The scope of the STTR would be significantly expanded if it were based on the effective rather than statutory tax rate in the recipient country. Based on staff simulation that assumes an ETR of half the statutory rate, close to one third (416 out of 1,474) of treaties would

⁴⁸ WHTs helps address frequent challenges with base erosion through service payments, which are difficult to challenge in practice where providers in conduit countries have some substance (staff, intellectual property).

⁴⁹ The UN Tax Committee is currently considering developing a “Fast Track Instrument”—reminiscent of the MLI—to facilitate the uptake of more recently developed UN Model provisions that strengthen source country taxation, such as Article 12A (fees for technical services), Article 12B (automated digital services), offshore indirect transfers (Article 13, paras. (6) and (7)), and the simplified and broadened STTR currently being considered; see above note 23.

become eligible for the STTR, involving 81 developing countries and 37 treaty partners. The revenue potential of the STTR would be significantly enhanced, expanding to 50 treaties for 16 developing countries with information available on covered payments. The additional STTR revenue could add up to 0.8 percent of current CIT revenue for the respective source country, assuming that there will be no change in the effective CIT rate in the recipient countries.⁵⁰

55. More fundamental reforms could be shaped with the interest of LICs in mind. This requires that simplicity becomes a primary objective of the reforms. If safe harbors become recognized as an acceptable method under the arms-length principle, its design should ensure a reasonable portion of the profits in LICs. If formula apportionment becomes more important, allocation factors could be chosen that attribute a greater share of the profits to developing countries.

⁵⁰ Should resident countries increase their tax rate in response to the STTR, the strong revenue effects even from this alternative design would likely vanish.

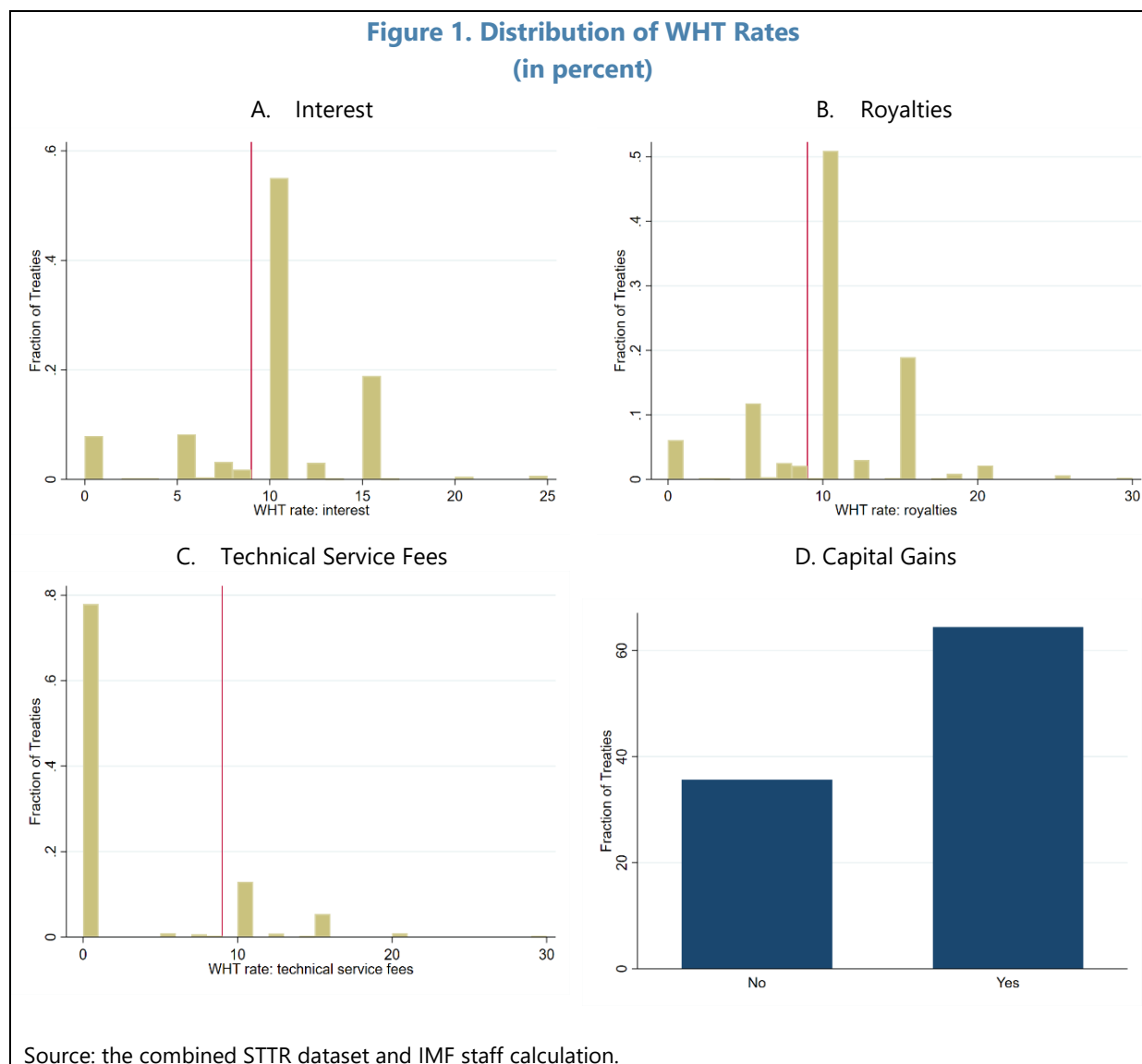
Appendix I. Data and Methodology of Impact Assessment

A. Revenue Estimates

1. The calculation steps for Figure 1 are detailed in the [Online Annex of the April 2022 Fiscal Monitor](#). The reallocated portion of profit under P1 is computed for each in-scope MNE using S&P Capital IQ data on consolidated accounts of the largest 40,000 MNEs as 25 percent of the “residual” profit, which is defined as profit exceeding 10 percent of global revenue. Next, all portions are summed up to obtain the global amount of profit to be allocated to market countries. The share of a source country in the aggregate profit that will be reallocated is computed using [country by-country \(CbC\) data](#). The allocation to market countries is done with two different measures: (i) *CbC allocation*: based on shares of countries in final sales, computed using data from the U.S. Bureau of Economic Analysis ([BEA](#)) for U.S. multinationals and [CbC data](#) for all others; (ii) *macro allocation*: constructed using aggregate statistics, and obtained from Beer and others (forthcoming-c). The statutory CIT rate is used to calculate the revenue implication. For P2, the substance-based income exclusion is computed from the CbC data. The global amount of profit that falls under the scope of GloBE minimum tax (i.e., subject to a top-up tax) is computed using “Table IV – Aggregate totals by tax rate of MNE sub-groups” in the 2017 CBC statistics.

2. The impact of the STTR depends on the existing withholding taxes in the source countries as well as on the tax payable in the residence country, based on the statutory rate and any preferential adjustments.¹ Focusing on WHT in the source countries alone, about 19 percent of the treaties apply a WHT rate less than 9 percent to interest, and about 20 percent of the treaties tax royalties less than 9 percent (Figure 9). In contrast, the WHT rate for technical service fees in most treaties—close to 80 percent of all treaties—is less than 9 percent and equals zero in 78 percent of all treaties. In terms of capital gains, 63 percent of treaties allow for WHT on capital gains from immovable property, and 33 percent allow for WHT on capital gains from other shares. The specific WHT rate for capital gains is prescribed in the domestic legislation and is typically lower than those for interest or royalties.

¹ The preferential adjustments account for the Patent Box regime in 18 resident countries. Other preferential regimes in the resident countries may include special economic zones or tax incentives. Territoriality could also mean no taxation in the country of residence—but because it is typically restricted to some types of active income, it is unlikely to apply to flows covered by the STTR.



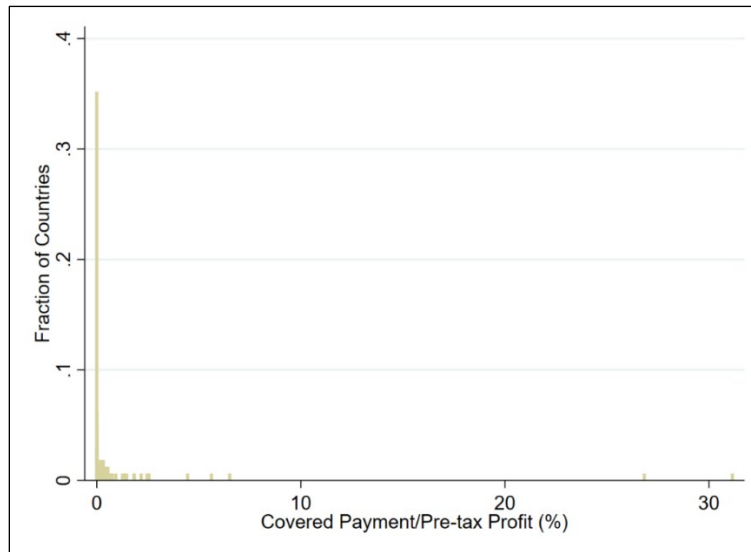
3. The number of treaties that would be impacted by the STTR shrinks substantially when accounting for the nominal corporate tax rate in the recipient country. For interest and royalties, the top-up rate for STTR is positive for 26 and 27 treaties. For technical service fees, 101 treaties have room for additional STTR. Overall, the minimum would apply in 101 treaties for 32 developing countries, concluded with 13 developed countries (6.9 percent of the total number of treaties) to outbound payment of interest, royalties, and technical service.

Revenue Potential

4. To assess the revenue potential of the STTR, covered payment is defined broadly to include royalties and charges for financing and insurance services, professional services and technical services. Relative to the size of total taxable profit for CIT (imputed as net CIT revenue divided by the

respective statutory CIT rate for each country), the size of covered payment is typically small—less than 0.05 percent in close to 60 percent of these countries—with a median and mean of 0.02 and 0.7 percent (Figure 10).

Figure 2. Share of Covered Payment Relative to Pre-Tax Profit



Source: the combined STTR dataset and IMF staff calculation.

5. Among the 101 treaties that are identified as in scope, 20 treaties with detailed information on service imports will give rise to positive STTR, for 7 developing countries (China, Egypt, Indonesia, Mexico, Morocco, Philippines, and South Africa). The amount of STTR revenue varies substantially, ranging from almost zero to 0.14 percent of current CIT revenue for individual treaties. In aggregate, the STTR would bring additional CIT revenue of between 0.002 and 0.14 percent for the respective source country. The majority of the STTR revenue comes from service payments. Restricting the STTR to royalties would generate additional revenue in only one treaty, adding 0.003 percent of CIT revenue for the respective source country.

Options to Expand the STTR

6. Several options can be considered to expand the design of the STTR to have a greater benefit to LICs, the first being to expand the STTR rule to a wider set of cross-border payments, including capital gains and a broad range of service payments, for example following the approach used in defining the covered payment in the revenue analysis. The analysis above demonstrates clearly that in comparison to interest and royalty payment, many more treaties apply a lower WHT rate to technical service fees. When expanding the covered payment to technical service fees, it significantly enhances the revenue potential of the STTR.

Another option is to use a modified CIT rate to determine the top-up rate, in particular the *effective* rate under which the covered payment is taxed in the resident country. Many countries apply preferential tax rates on foreign-source income, which when combined with BEPS practices, results

in an effective rate that is significantly lower than—on average around half of—the nominal rate in taxing MNE profits.² Using an effective rate would also be consistent with the GloBE, which assesses the average effective tax burden on the GloBE income in determining the top-up rate.

7. To illustrate, an alternative design of the STTR could consider the effective CIT rate in the resident country, proxied by one half of the nominal rate (for simplicity and in the absence of detailed data available to developing countries). This approach would significantly expand the scope of the STTR: close to one third (416 out of 1,474) of treaties would become eligible for the STTR, involving 81 developing countries and 37 treaty partners. The revenue potential of the STTR would be significantly enhanced under this alternative design, expanding to 50 treaties for 16 developing countries with information available on covered payment. The additional STTR revenue will add between 0.0003 and 0.8 percent of current CIT revenue for the respective source country, assuming that there will be no change in the CIT rate in the recipient countries. Should resident countries increase their tax rate in response to the STTR (which would be a rational response), the strong revenue effects even from this alternative design would likely be reduced.

B. Investment and ETR

8. This appendix illustrates the impact of P2 on investment incentives, by deriving forward-looking effective tax rates (ETRs) with a minimum rate and substance-based income exclusion (SBIE). ETRs are summary tax indicators aimed at summarizing tax rules, accounting for not only statutory CIT rates but also key features of the tax base. ETRs has been commonly used in policy analysis,³ and have proved instructive in better understanding the nature and magnitude of the overall impact of the corporate tax system on business investment decisions. In particular, two types of forward-looking ETRs are discussed:

- **Marginal effective tax rates** (METRs) measure the extent to which taxation causes the pre-tax hurdle rate of return on investment to deviate from its normal (minimum) after-tax rate of return, which shareholders could obtain elsewhere. METRs reflect the “tax wedge” on investments that just break even. They are routinely used to assess how taxes distort the level of investment (scale decisions).
- **Average effective tax rates** (AETRs) are usually calculated as the present-discounted value of CIT payment on returns on investment, divided by the present discounted value of the (before-tax) income from the investment. They measure the tax burden on profitable investment projects, i.e., those earning an above-normal rate of return (due, for instance, to patents, market power, or location rents). AETRs are used to assess tax effects on discrete investment choices, and in particular MNE decisions of where to locate FDI (location decisions).

² Based on a comparison of effective and statutory CIT rate using the CbC data.

³ Including most recently in OECD (2022d).

Workhorse Model

9. Following IMF and others (2015), the baseline ETRs are derived from a simple workhorse model of investment, which can easily be extended to capture the effect of the GloBE.⁴ Suppose there is an investment project in period 0 of size I_0 , which is purchased at price Q_0 . After period 0, the capital stock (K_t) depreciates every year (t) at a declining balance rate (δ_t). At the same time, the capital stock is increased by new investment every year, I_t , which is purchased at price Q_t . The physical capital stock thus accumulates according to $K_t = (1 - \delta_t)K_{t-1} + I_t$. The net present value of the cash flow associated with the investment is given by:

$$\text{NPV} = -Q_0 I_0 (1 - uA) + \sum_{t=1}^{\infty} \frac{P_t F(K_t) (1 - u) - (1 - uA) Q_t I_t}{((1 + r)(1 + \pi))^t} \quad (1)$$

where $F(\cdot)$ is a production function with properties $F_K > 0$, $F_{KK} < 0$, P_t is the price of output, π is the general rate of inflation and r is the minimum (normal) real rate of return required by shareholders (which they could obtain on alternative investments, such as government bonds). The gross returns to the investment are taxed at the statutory CIT rate u . For now, financing costs are assumed non-tax deductible—reflecting equity-financed investment in most countries. Tax depreciation allowances (which are assumed not to be indexed for inflation) are deductible at a declining balance rate α , which may differ from economic depreciation δ , where the tax depreciation rate is constant. The NPV of tax depreciation allowances in terms of the cost of investment is denoted by A and given by:

$$A = \sum_{s=1}^{\infty} \frac{\alpha (1 - \alpha)^{s-1}}{((1 + r)(1 + \pi))^{s-1}} = \alpha \frac{(1 + r)(1 + \pi)}{r(1 + \pi) + \pi + \alpha} \quad (2)$$

10. Parameter A generally lies between 0 and 1, since depreciation for tax purpose is not immediate (in which case $A = 1$). Multiplying A by the tax rate u gives the value of tax depreciation allowances in terms of tax savings. According to (1), uA effectively reduces the price of investment.

In the remainder, for simplicity, replacement investment in each period t is assumed to be just enough to maintain the capital stock at its initial level, i.e., $I_t = \delta_t K_{t-1}$ so that $K_t = K_0 = K$. Also, it is assumed that P and Q increase annually at the general rate of inflation, π . Prices are normalized such that $P_0 = Q_0 = 1$ and investment and output are expressed in real value terms. Using the geometric sequence, equation (1) can be rewritten as

$$\text{NPV} = \frac{F(K)(1 - u) - (r + \delta)(1 - uA)K}{r} = \frac{[F(K) - (r + \delta)K] - u[F(K) - A(r + \delta)K]}{r} \quad (3)$$

11. Where the term in first square brackets can be viewed as economic profit (in excess of normal profit), whereas the second term is net tax liability by applying u to the taxable profit

⁴ Without considering profit shifting and its implications on ETRs. Klemm and Liu (2021) show, among others, that profit shifting would lead to a reduction in ETRs in all jurisdictions, high and low-tax alike.

$(F(K) - A(r + \delta)K)$. The profit-maximizing level of investment is at the point where an additional unit of physical capital yields no further increase in the NPV:

$$\frac{\partial NPV}{\partial K} = F_K(1 - u) - (r + \delta)(1 - uA) = 0 \quad (4)$$

or equivalently

$$F_K = \frac{(r + \delta)(1 - uA)}{(1 - u)} \quad (5)$$

Equation (4) can be rewritten in terms of so-called hurdle rate of return, defined as the real gross (i.e., before-tax) rate of return net of depreciation (RG):

$$RG = F_K - \delta = \frac{(r + \delta)(1 - uA)}{(1 - u)} - \delta \quad (6)$$

12. In the absence of tax, the hurdle rate equals the normal rate of return, r , where incremental investment yields no economic profit. Taxation may affect the hurdle rate in (6), but not necessarily so. For instance, with immediate expensing ($A = 1$), taxation is neutral with respect to investment. However, if $A < 1$ (the usual case in most countries), the hurdle rate of return exceeds the normal rate of return, implying that taxation would reduce the optimal level of investment.

13. The METR is generally derived from the hurdle rate as follows:

$$\text{METR} = \frac{RG - r}{RG} \quad (7)$$

The METR thus measures the difference ("tax wedge") between the hurdle rate and the after-tax required rate of return r , as a percentage of the hurdle rate. Combining (6) and (7), the METR can be rewritten as:

$$\text{METR} = \frac{u(1 - A)(r + \delta)}{r(1 - uA) + u\delta(1 - A)} \quad (8)$$

The METR will be positive as long as $A < 1$ and $u > 0$. In this case, the CIT causes the hurdle rate of return to rise. Fewer investment projects will be profitable, and investment will decline.

The AETR does not use the optimality condition for investment above, but rather divides the net present value of total CIT payments of any (profitable) project by the net present value of total pre-tax profit for that project:

$$\text{AETR} = \frac{u[F(K) - A(r + \delta)K]}{p} = \frac{(p - r)u + (1 - A)(r + \delta)u}{p} \quad (9)$$

where $p = \frac{F(K)}{K} - \delta$ is the average pre-tax rate of return to the investment project, net of depreciation, and $p - r$ is the rate of economic profit, i.e., the rate of return in excess of the normal rate of return. The first term therefore measures the CIT on economic profit per unit of investment. The second term measures CIT, net of tax depreciation allowances, on the minimum required normal return, per unit of investment. For projects that earn a high rate of economic profit, the first term carries a large weight, with the AETR rising toward the statutory tax rate as profitability increases. For

projects that generate a low economic profit, the first term is of minor importance and the second term becomes more important. This second term is similar to the METR in (8).

ETRs under the GloBE

14. Within this framework of ETRs in expressions (8) and (9), METR and AETR can be extended to incorporate the features of the GloBE. To simplify, assume per-country GloBE income is the same as the domestic tax base (in the absence of tax incentives). The GloBE rate, m , is assumed to be higher than the statutory CIT rate ($m > u$) and applies to the GloBE income on top of the carve-out, defined as a fixed percentage of the capital stock (cK).

Under these assumptions, the NPV of an investment subject to the minimum tax is given by⁵

$$NPV = \frac{[F(K) - (r + \delta)K] - m[F(K) - A(r + \delta)K] + (m - u)cK}{r} \quad (10)$$

The minimum tax reduces after-tax profit when applying to a positive tax base, which is defined as a weighted average between the economic profit rate and the gross rate of return, with weights determined by depreciation allowances, exceeds the carve-out share c . This can be seen by rewriting $F(K) - A(r + \delta)K - cK > 0$ as

$$c < [p - r]A + [p + \delta](1 - A) \quad (11)$$

The profit-maximizing level of investment under the GloBE is now given by:

$$F_K^G = \frac{(r + \delta)(1 - mA) - c(m - u)}{(1 - m)} \quad (12)$$

subsuming the special case that when $m = u$, F_K is back to the standard case. The METR under the minimum tax is now given by:

$$METR^G = \frac{(r + \delta)(1 - A)m - c(m - u)}{r(1 - mA) + \delta(1 - A)m - c(m - u)} \quad (13)$$

In general, the cost of capital (and the METR) under the minimum tax (F_K^G) exceeds the standard case without a minimum tax (F_K) if

$$c < \frac{(r + \delta)(1 - A)}{(1 - u)} \quad (14)$$

with the right-hand side of the inequality decreasing in A and increasing in u . Accordingly, GloBE is more likely to increase the METR in jurisdictions with less generous tax depreciation or low statutory (and average) tax rate. Note that the rhs of the inequality is always less than F_K , thus a carveout in the amount of F_K —such as ACE-like deduction set at the right normal return—would be sufficient to guarantee that the METR under the minimum tax would not increase. With a generous carve-out,

⁵ This follows from solving $NPV = -(1 - mA)\delta K + \sum_{t=1}^{\infty} \frac{F(K) - \delta K - u[F(K) - A\delta K] - (m - u)[F(K) - A\delta K - cK]}{(1 + r)^t}$

not satisfying equation (14), GloBE reduces the cost of capital and the METR. For instance, while increasing the AETR.

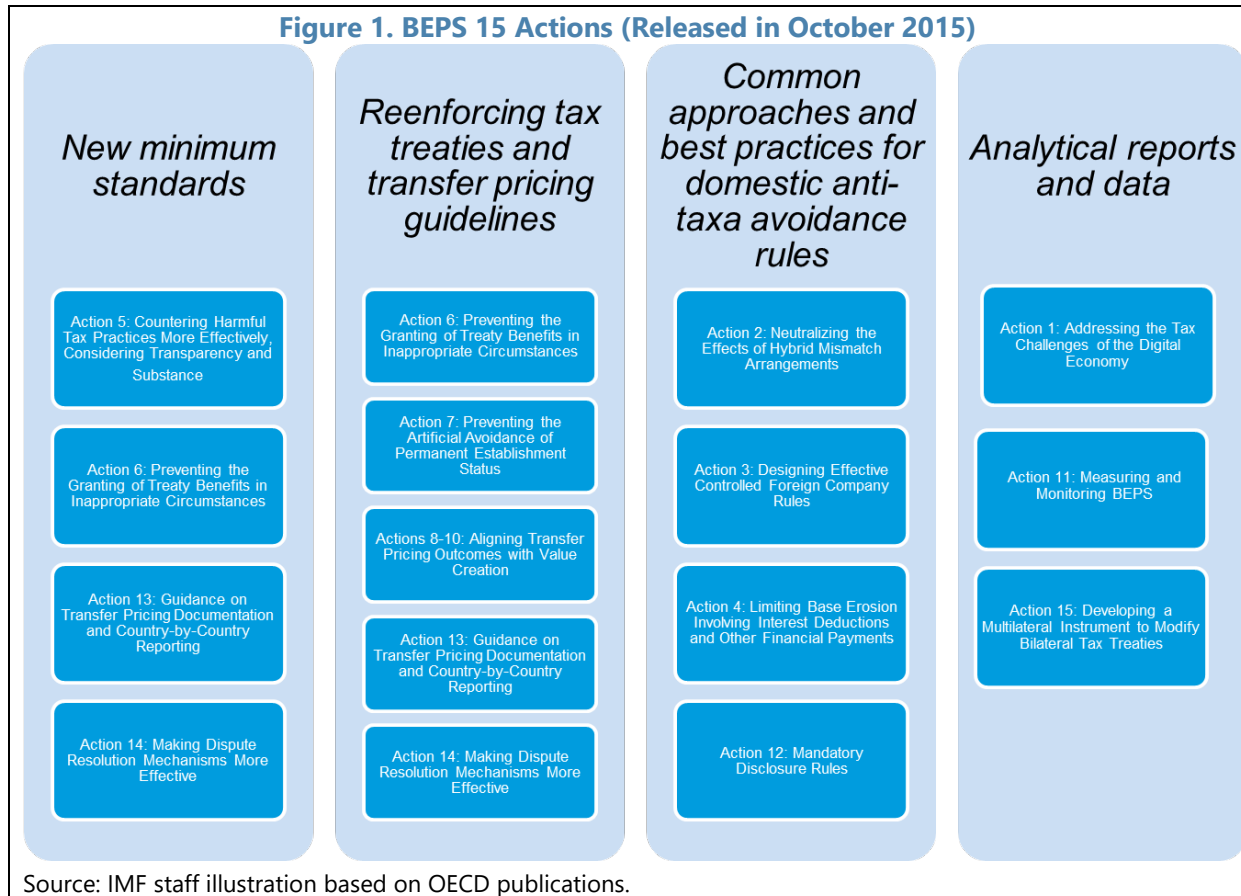
The AETR under the minimum tax is now modified as:

$$AETR^G = \frac{m[F(K) - A(r + \delta)K] - (m - u)cK}{F(K) - \delta K} = \frac{(p - r)m + (1 - A)(r + \delta)m - (m - u)c}{p} \quad (15)$$

15. The first two terms in equation (15) have similar interpretations compared to the standard case in equation (9). The first term measures the minimum tax on economic profit per unit of investment. The second term measures the minimum tax, net of tax depreciation allowances, on the minimum required normal return, per unit of investment. As the minimum rate is higher than the standard CIT rate, the first two terms lead to an unambiguous increase in the AETR. The third term, however, reduces the AETR by the top-up rate on the carve-out share, which remains to be taxed under the standard CIT rate. The overall AETR would therefore increase under the minimum tax ($AETR^G > AETR$) when it's applied to a positive tax base, following the condition in equation (11). As a result, all investment that are liable to additional top-up tax under the GLOBE will face a higher AETR, but not necessarily a higher METR when the carveout covers the marginal investment with a lower rate of return.

Appendix II. BEPS and ATAD

1. The G20-OECD BEPS project concluded in 2015 on 15 actions. Four of the 15 BEPS actions are “minimum standards” that are implemented by the IF countries in their domestic laws or tax treaties (Figure 11). In contrast, other actions are “common approaches” or amendments to core OECD guidelines that do not entail political commitment to implementation.



2. The BEPS actions inspired the European Commission to propose two Anti-Tax Avoidance Directives (ATAD I and II), which were adopted in 2016 and 2017. The Directives: (i) make three BEPS actions mandatory for EU member states that are only common approaches under BEPS (for instance introducing a rule that limits deductions of interest expense, Table 1); and (ii) include measures beyond the BEPS initiative (for example an exit tax, Table 1).

Table 1. BEPS and ATAD Measures

ATAD Measures	BEPS	Description
1. Interest limitation rule	Yes	An <i>earning-stripping rule</i> that addresses profit shifting using intra-company loans by denying the deduction of interest expenses if the ratio of net interest payments to Earnings before interest, tax, depreciation and amortization (EBITDA) exceeds 30 percent.
2. Controlled foreign company (CFC) rule	Yes	<i>CFC rules</i> attribute passive income of a non-resident controlled entity, if some conditions are met, to the parent company (i.e., to be deemed as taxable income in the resident country).
3. Hybrid mismatches rule	Yes	A <i>hybrid mismatches rule</i> counters tax planning that exploits differences in countries' legal characterizations of an entity or a financial instrument (e.g., leading to double deduction). The ATAD originally addressed arrangements within the EU, but it was extended in March 2017 to coverage arrangements between EU Member States and non-member states.
4. General anti-avoidance rule (GAAR)	No	A <i>GAAR</i> is a provision of last resort that empowers the tax authority to counter schemes or transactions that undermine the intention of the tax law to avoid taxes, despite being formally compliant with the tax law.
5. Exit taxation	No	EU Member States shall apply an exit tax on the excess of the market value of the transferred assets over their tax value, to prevent companies from avoiding tax in the State of origin by moving their tax residence or closing a permanent establishment. This tax serves as a safeguard against base erosion rather than a source of revenues.
BEPS Minimum Standards		
Action 5		This rule requires 'substantial activity' by the taxpayer as a qualification for a preferential tax regime (the "nexus approach"). Preferential tax regimes that fail to conform to the nexus approach are deemed harmful and should be revised.
Action 6		This rule requires the inclusion of abuse clauses in double taxation agreements to address tax treaty abuse (claiming treaty benefits in situations where these benefits were not intended to be granted).
Action 13		This rule requires multinationals (with consolidated group revenue of at least €750 million) to report key activities on country-by-country basis. Improving the availability and quality of data enhances transparency and supports tax enforcement.
Action 14		This standard is for improving the resolution of tax treaty-related disputes between jurisdictions to resolve such cases in a timely manner.

Source: IMF staff illustration and summary based on OECD and EC publications.

Appendix III. Risky Treaties

1. Beer and others (forthcoming-b) draw on ICTD’s Tax Treaties Explorer (2022) to examine drivers and effects of treaty cancellation. The baseline estimation of the drivers of treaty cancellation is based on a multinomial logit model of the form:

$$\ln \left[\frac{P(\text{Discont}_{t,k})}{P(\text{Cont}_t)} \right] = \beta_k X_t + \gamma_k Z + \varepsilon_t$$

Where $P(\text{Discont}_{t,k})$ is the probability of treaty discontinuation with $k \in \{\text{renegotiation, termination}\}$ and $P(\text{Cont}_t)$ is the probability of treaty continuation. The logistic ratio of these probabilities (the log odds) are assumed to be a linear function of treaty-specific variables X_t as well as source and residence country characteristics Z . Treaty provisions (except for the lag between signing and until a treaty becomes effective) are standardized to lie between 0 and 1 and expressed in deviations of source-country specific averages. Larger values thus represent a larger deviation in favor of the resident country. For instance, a positive value for the variable *WHT interest* means that a specific treaty ascribes fewer taxing rights (a lower maximum WHT rate on interest payments) than the source country’s average.

2. The analysis focuses on treaties that source countries concluded with other countries, differentiating between advanced economies (IMF classification) and investment hubs, where inward FDI exceeds 150 percent of GDP. Advanced countries that are also investment hubs are classified as investment hubs. Table B1 summarizes estimation results. Except for withholding taxation of dividends, all other WHT provisions seem to matter.

Table 1. Multinomial Regression Results, N=2296

	Renegotiation	Termination
Intercept	-0.9798	-0.8217
Source country average CIT rate	-0.035***	0.0256
Residence country average CIT rate	-0.0136	0.0173
log(Source country Gdp)	0.2222***	-0.5133***
log(Residence country Gdp)	0.1559***	-0.12
log(Residence country Stock)	0.133*	-0.31
log(Source country Stock)	-0.244***	-0.2647
Treaty partner is advanced economy	-0.1576	0.4575
Treaty partner is source country	-0.6406***	-13.4901***
Lag until treaty becomes effective	-0.0856***	-0.2408***
Offshore capital gains	0.312**	0.3358
PE taxing rights	0.5339	2.136*
WHT dividends	0.327	-0.6806
WHT interest	0.5215*	3.2974***
WHT royalties	-0.1808	1.8642*
WHT services	0.0503	-1.254
Anti-abuse	1.5209***	2.1482**
Independent services	0.1151	0.5433
AIC= 2406.811		
Notes: Estimated marginal effects of explanatory variables on the likelihood of a treaty being discontinued, either through renegotiation or treaty cancelation. *, **, and *** indicate statistical significance at the 10, 5 and 1 percent level.		

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