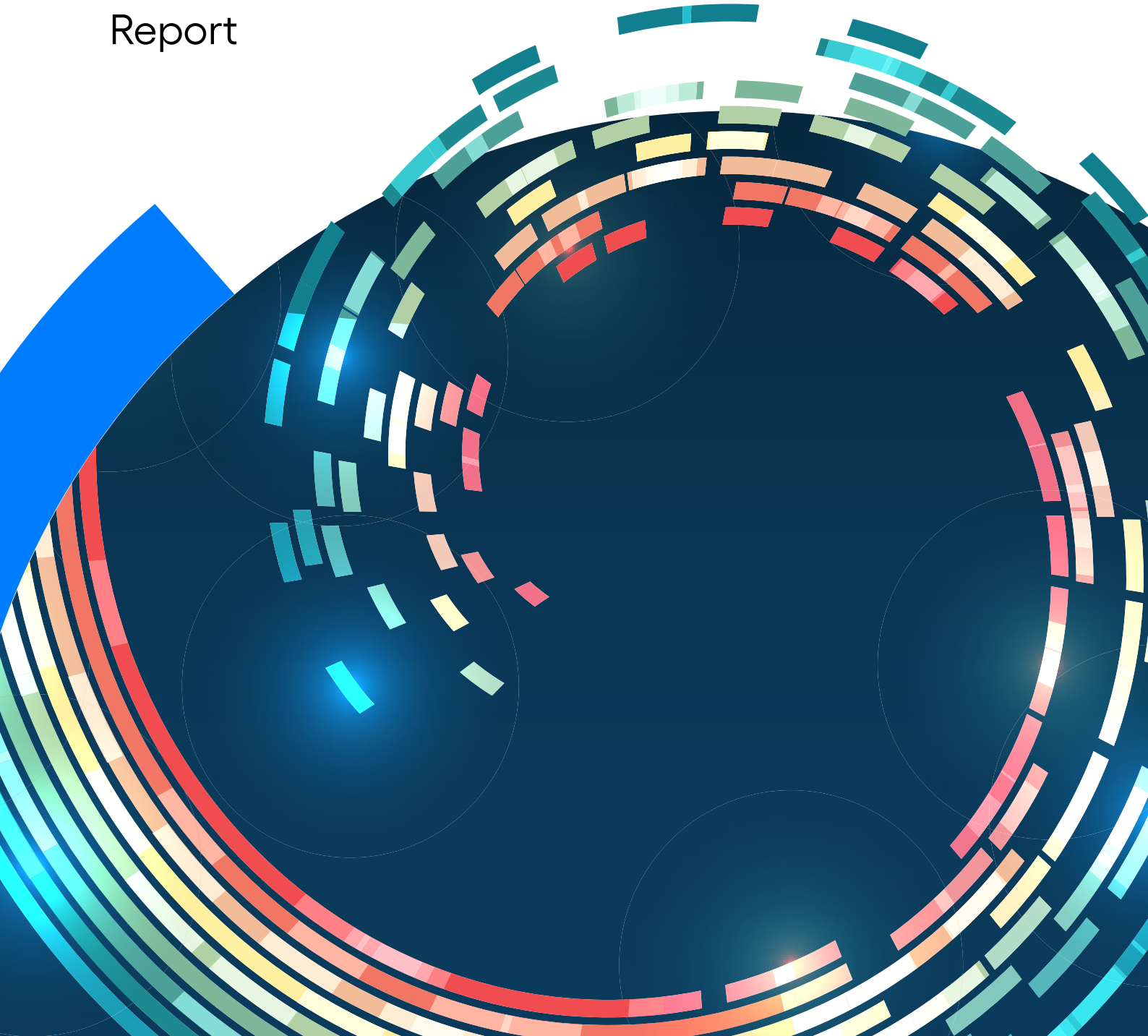
OXFORD ECONOMICS

ICC

Economic impact of Article 12AA

New UN tax model provision on cross-border services

Report



Contents

Executive summary

This report provides the first quantitative assessment of the potential economic and fiscal impacts of the new Article 12AA on cross-border services in the United Nations Model Tax Convention. Designed to strengthen source-country taxing rights, the Article's recent introduction has sparked significant discussion – mostly from a legal perspective. Despite its importance for international tax practice, its broader economic and fiscal implications have remained largely unexplored. Furthermore, this assessment comes at a time when developing economies are increasingly active exporters of professional and technical services, challenging the traditional assumption that the Global South are predominantly source countries in such transactions.

Scope and approach

Our analysis quantifies the impacts for the Global South – non-OECD members that are lower and middle-income countries based on the World Bank's classification – by comparing a "status quo" baseline with a counterfactual scenario that assumes widespread adoption of Article 12AA. The parameter values are selected to reflect prevailing tax practices in the Global South[1], informed by detailed legal analysis and a review of existing domestic tax regimes and treaty frameworks.

At a high level, the Article 12AA Adoption scenario assumes that countries in the Global South would levy withholding taxes (WHT) with a statutory rate of at least 15% – the median rates among implementing countries in the Global South. In parallel, the scenario assumes that Global South countries would renegotiate their existing double tax treaties (DTTs) to include a WHT cap of 3% for deals with the Global North and a cap of 10% in deals with other Global South partners, reflecting the norms among DTTs agreed since 2018.

We emphasise that this report does not seek to recommend for or against the adoption of Article 12AA by individual countries. Accordingly, the scenario assumptions are not prescriptive, but are intended to illustrate plausible policy outcomes under current norms and practice. To account for uncertainty around future policy design, the analysis also includes an alternative scenario with lower withholding tax rates. The empirical assessment relies on a rigorous quantitative framework that combines country-specific information on tax systems and treaty provisions with state-of-the-art economic modelling.

Key economic findings

The results indicate that the widespread adoption of Article 12AA would lead to a material contraction in services trade in the Global South, due to the higher effective cost of cross-border service provision. Under this scenario, total exports of technical and professional services by developing economies decline by around 4.2% relative to baseline. Imports also fall by 4.1% while substitution toward domestic service provision is much more limited, reflecting capacity constraints and the highly specialised nature of many imported services.

This effect is uneven across partners. Imports from other developing economies fall more sharply than imports from advanced economies. On the export side, developing economies also experience a decline in cross-border services exports, weakening their competitiveness in knowledge-intensive

1 Global South represents non-OECD members that are lower- and middle-income countries based on the World Bank's classification.

activities that are increasingly important for diversification and long-term growth. The results raise concerns for trade diversification and resilience, as Article 12AA may disproportionately reduce South–South services trade and run counter to developing economies' efforts to diversify their trade relationships.

Beyond the cross-border services sectors directly affected by Article 12AA, the analysis identifies substantial spillovers to the wider economy through overall trade and investment flows. Under the Article 12AA Adoption scenario, Global South's annual imports of all non-extractive goods and services decline by around 0.75%, while their exports fall by approximately 0.47% relative to the baseline. In parallel, the model indicates annual inward FDI would decline by around 0.28%.

Taken together, these trade and investment effects translate into a measurable drag on aggregate economic performance for the Global South as non-extractive GDP is estimated to decline by around 0.08% relative to the current baseline. This GDP effect reflects the cumulative impact of weaker trade integration, reduced investment, and, consequently, slower productivity growth from global economic disintegration.

From a development policy perspective, the results highlight the importance of assessing international tax reforms through a multi-dimensional lens that captures interactions across trade, investment, and production channels, rather than evaluating individual instruments in isolation. For example, the contraction of non-extractive economic activities can work against policy efforts to diversify the economic bases for resource-dependent countries such as Nigeria.

Fiscal impacts and trade-offs

From a fiscal perspective, the Article 12AA Adoption scenario is expected to reduce annual government revenue for the Global South by 0.003% annually (equivalent to US$241 million per year for countries in our sample), compared to the "status quo" baseline. This net outcome reflects a fundamental trade-off: although Article 12AA increases gross WHT revenues by strengthening source-country taxation of cross-border services, these direct gains are more than offset by revenue losses associated with weaker economic activity and other adjustments across the service trade system. This net fiscal impact is robust to alternative modelling specifications (Annex 3).

On a mechanical basis, higher effective bilateral WHT rates on cross-border services raise gross WHT revenues for the Global South by approximately US$7.0 billion per year (0.09% of revenue). This WHT rates reflects both the introduction or increase of domestic WHTs in countries where such taxes were previously absent and the relaxation of treaty constraints currently limits source-country taxation.

However, these direct gains are offset by several adjustment channels to the tune of US$7.2 billion. Most importantly, the contraction in the Global South's GDP leads to an estimated revenue loss of US$7.0 billion annually. Other trade-related adjustments further erode the tax revenue associated with cross-border services by US$241 million. For example, changes in trade volumes and partner composition reduce the WHT base, while increased import substitution yields only modest corporate income tax gains due to limited margins and profitability. On the residence side, higher foreign WHTs reduce net corporate tax revenues through foreign tax credits and deductions claimed by resident service exporters.

Our aggregate results for the Global South level are robust across alternative scenarios and modelling assumptions. The main specification should be interpreted as a conservative benchmark

– several alternative specifications generate larger adverse impacts. At the same time, our four case studies reveal substantial heterogeneity across countries. These differences underscore that Article 12AA does not yield uniform outcomes: its implications depend critically on countries' trade structures, treaty networks, and domestic tax systems.

These findings highlight that Article 12AA can have important economic and fiscal implications beyond the immediate consequences. Policy discussions should therefore move beyond technical tax considerations to factor in specific country contexts and explicitly address its broader economy-wide effects.

This report has been prepared by Oxford Economics with the financial support of International Chamber of Commerce. We sincerely thank Professor Annet Uguttu who provided valuable legal analysis and advice for the background research. Oxford Economics enjoyed academic freedom and full editorial control of the report. Oxford Economics assumes all responsibility for the report analysis, findings and conclusions.

Section 1
Introduction

In March 2025, the United Nations Committee of Experts on International Cooperation in Tax Matters adopted Article 12AA on Fees for Services, for inclusion in the 2025 update of the United Nations Model Double Taxation Convention. The adoption of Article 12AA reflects long-standing concerns among many developing countries regarding the allocation of taxing rights over cross-border services. In an increasingly digitalised and service-oriented global economy, traditional nexus concepts based on physical presence or duration thresholds are viewed by some policymakers – especially those in the Global South – as insufficient to capture economic activity and value creation associated with international service provision.

Despite the policy significance of Article 12AA, there is currently limited quantitative evidence on its potential economic and fiscal impacts. This report seeks to address that gap by providing a comprehensive, economy-wide assessment of the implications of Article 12AA adoption, with a particular focus on developing economies. Oxford Economics has therefore been commissioned by the International Chamber of Commerce (ICC) to provide such an analysis.

The objective of the report is to provide an independent and evidence-based assessment of the potential economic and fiscal consequences of Article 12AA, to inform policymakers, tax administrations, and stakeholders engaged in discussions on international tax reform and the taxation of cross-border services.

The analysis combines legal interpretation with empirical and model-based economic analysis. Informed by our legal analysis, it develops a counterfactual policy scenario for Article 12AA adoption and compares it to the current "status quo" baseline. The economic impacts are quantified using gravity-based econometric estimates and a structural general-equilibrium framework, allowing the analysis to capture both direct effects on cross-border services and macroeconomic performance, as well as indirect spillovers across economies. The report also assesses the fiscal consequences of Article 12AA, considering withholding tax (WHT) revenues, interactions with corporate income taxation, and broader revenue effects arising from changes in economic activity.

This report details our findings and the assumptions underpinning our analysis. It is structured as follows:

- **Section 2** provides an overview of the economic context and implications of Article 12AA, including its role in the international tax framework and expected economic effects;
- **Section 3** describes the modelling approach, covering the scenario narrative, calibration, and methods used to estimate fiscal impacts;
- **Section 4** presents the results of our analysis, including impacts on cross-border services trade, broader macroeconomic effects, and fiscal consequences; and
- **Annexes** provide supporting material, including the draft text of Article 12AA, modelling methodology, and a glossary of abbreviations.

Section 2
Legal context and scenario assumptions

2.1. Article 12AA in the International Tax Framework

Article 12AA is a model provision included in the 2025 version of the United Nations Model Double Taxation Convention (UN MTC) addressing the taxation of fees for cross-border services. By itself, it is not legally binding and does not operate autonomously. Instead, it serves as a modal article that countries may choose to incorporate – often verbatim – into their bilateral DTTs, subject to negotiation between treaty partners. Within the UN MTC, Article 12AA is designed to operate in relation to, and partly replace, two existing provisions: Article 14 (Independent Personal Services) and Article 12A (Fees for Technical Services).[2]

Article 12AA forms part of an ongoing efforts concerning the appropriate allocation of taxing rights over cross-border services. Unlike trade in goods, services can often be supplied without a sustained physical presence in the market jurisdiction, which has historically complicated the application of source-based taxation. As a result, the treatment of service income has evolved unevenly across tax treaty practice, giving rise to differing approaches in the main model tax conventions.

Currently, there are two broad treaty approaches to the taxation of cross-border services, reflected in the OECD and UN MTC. Under the OECD MTC, cross-border service fees are generally treated as business profits and are taxable exclusively in the residence country of the service provider, unless the provider has a permanent establishment (PE) in the source country.[3] Articles 5 and 7 of the OECD MTC require a physical presence in the source state to establish a PE, and only the profits attributable to that PE may be taxed at source under the arm's length approach. In practice, this framework allocates primary taxing rights over cross-border services to residence countries and limits the ability of source countries to tax such income.

Tax treaties based on the UN MTC grant greater taxing rights to source countries, reflecting the policy preferences of many developing economies. In addition to PE rules broadly similar to those of the OECD MTC, the UN MTC includes a specific provision in Article 5(3)(b) for the furnishing of services, including consultancy services. This "services PE" provision allows a PE to arise based on a physical presence test, typically defined by a duration threshold (commonly around 183 days within a 12-month period), even in the absence of a fixed place of business. While this approach expands source-country taxing rights relative to the OECD model, it nonetheless remains anchored in the PE concept and continues to rely on physical presence or time-based thresholds.

Widespread adoption of Article 12AA would mark a shift in current practice by allowing source-based taxation of technical service fees without requiring the existence of a PE.[4] The underlying intention is to address perceived shortcomings of the PE-based framework in the context of modern, increasingly digital and remote service delivery models, where substantial economic activity can occur in a market without any sustained physical presence. From the perspective of many countries

2 Subject to the provision of Article 12B, Article 12AA would apply to non-automated cross-border services. In such case, Automated Digital Services fall within the scope of Article 12B of the UN Model Tax Convention.

3 Recent updates to the OECD Model Tax Convention have refined aspects of the PE concept, particularly in relation to fragmented activities and preparatory or auxiliary functions. However, these changes do not fundamentally alter the reliance on physical presence or time-based thresholds as the basis for source taxation.

4 Technically, Article 12A has been introduced to UN MTC since 2017 with a similar approach to PE provision. However, it has yet to have significant impact in practice, as only a handful of DTTs have been concluded with this provision.

in the Global South, reliance on PE thresholds may constrain source taxation of cross-border services in cases where significant service-related payments arise but physical presence or duration tests are not met, leading to outcomes that may be viewed as misaligned with the location of economic activity.

Furthermore, Article 12AA significantly broadens the types of services fees that source countries can tax. Article 12AA(3) defines "fees for services" to mean "any payment in consideration for any service". In practice, this broad scope may capture payments for services that are ancillary or low in materiality, such as after-sales support, routine maintenance, software updates bundled with goods, staff training, quality assurance, or management support services provided on an intermittent basis. This broad definition may be beneficial in expanding a country's tax base and may lead to increased tax revenue. It may however lead to a disproportionate administrative burden for taxpayers and tax administrators because all payments for services are covered. This could be onerous for small and medium-sized businesses that may not have the resources to comply with the administrative burden of complying with the article.

Under Article 12AA, source countries may explicitly levy WHT on fees for services on a gross basis, subject to a maximum rate (cap) agreed in the relevant treaty. This represents a departure from the prevailing practice in many DTTs involving Global South countries. Currently, the majority of DTTs signed by countries in the Global South (77% of North-South treaties and 63% of South-South treaties) do not allow this type of WHT on technical services (Figure 1). Governments of source countries in the Global South typically prefer WHT given their administrative capacity.[5]

However, this approach has raised concerns from the international business community.[6] From a business perspective, gross-basis taxation abstracts from cost structures associated with service provision, particularly where substantial inputs, labour costs, or headquarters expenses are incurred in the residence country. As a result, the effective tax burden may vary widely across firms and sectors depending on profitability, making outcomes highly sensitive to treaty rates and administrative practice. In volatile economic conditions, this asymmetry can disproportionately affect low-margin or project-based service activities, increasing the risk that higher statutory WHT rates translate into reduced service provision rather than sustained revenue gains. The business community has also raised other concerns with this approach such as the cash-flow pressures created by upfront withholding irrespective of profitability, the administrative and compliance burdens it entails, and the risk of double taxation arising from the imperfect functioning of foreign tax credit and relief mechanisms that remain commonplace in many developing countries.

The treaty cap in Article 12AA will vary across country pairs. The WHT cap under Article 12AA is not specified in the provision itself but is instead left to be determined through bilateral treaty negotiations. As with other treaty provisions, its practical effect will therefore depend on the relative negotiating positions, policy preferences, and broader economic relationship between the contracting states. For this reason, understanding how source taxation of services has been negotiated in existing treaties provides an important benchmark for assessing how Article 12AA might operate in practice.

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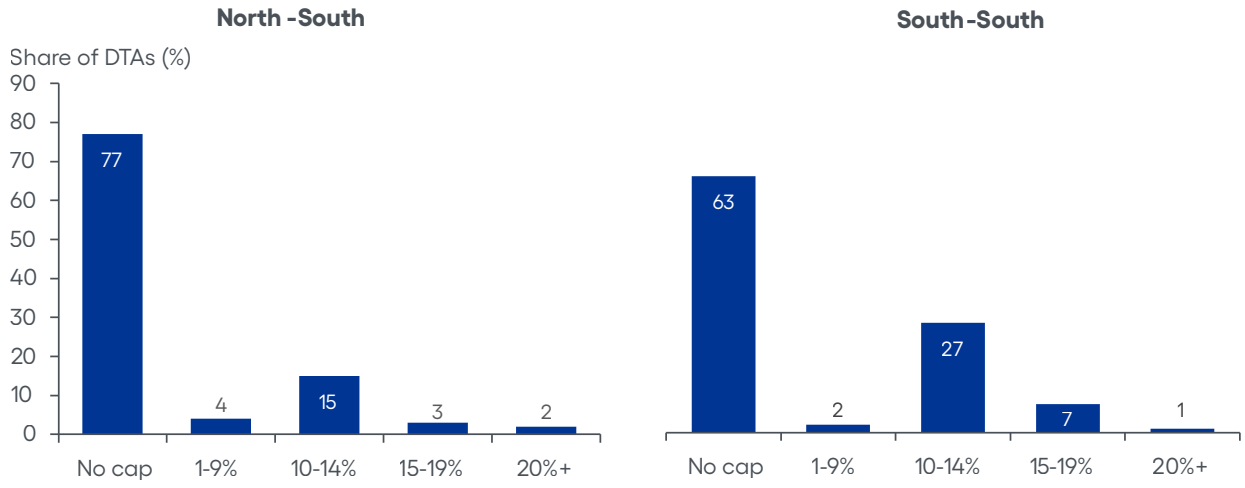
5 Annet Oguttu "A Critique of International Tax Measures and The OECD BEPS Project in Addressing Fair Treaty Allocation of Taxing Rights Between Residence and Source States: The Case of Tax Base Eroding Interest, Royalties and Service Fees from an African Perspective" (2018) Stellenbosch Law Review vol 29 (2) at 340.

6 For an example, please see the International Chamber of Commerce commentary on the taxation of Article XX (the initial naming of Article 12AA) https://iccwbo.org/wp-content/uploads/sites/3/2024/06/2024-ICC-Comments-Article-XX-taxation-of-cross-border-services.pdf

Existing DTTs show considerable variation in the extent to which source countries are permitted to levy WHT on services, both across partner types and across treaty models. In South–South treaties, explicit provisions allowing source taxation of services are more common, and negotiated caps – where they exist – tend to be higher.[7] By contrast, caps agreed in North–South treaties are typically lower. This asymmetry reflects the view that countries in the Global South are more frequently net importers of cross-border services and more often occupy the source position, while the Global North are more commonly service exporters and residence jurisdictions. This observed heterogeneity in treaty outcomes provides a critical reference point for constructing realistic adoption scenarios for Article 12AA, particularly with respect to expected WHT caps across different country pairs.

Figure 1: Distribution of technical service WHT in current DTTs, by partner type



Source: Oxford Economics/ITCD/OECD
Note: Where fees for technical services are included within the definition of royalties includes, ITCD codes this in the same way as if a separate article existed.

Box 1 Calibrating withholding tax rates for Article 12AA

This report calibrates Article 12AA WHT parameters primarily using statutory WHT rates applicable to technical services. The principal reason for relying on these rates is data availability and cross-country comparability. Statutory WHT rates on technical services are among the few service-related tax parameters for which systematic, publicly available, and internationally comparable data exist. In addition, this approach allows us to draw directly on existing econometric estimates in the literature, such as Liu et al. (2025).[8] Taken together, these data sources provide the global coverage and robustness required for a multi-country quantitative assessment.

Specifically, our database of statutory rates of WHT on cross-border technical services draws from various publicly available resources. Domestic statutory WHT information are compiled from the OECD Corporate Income Tax Statistics, complemented by data from the PwC Worldwide Tax Summaries and the EY Worldwide Corporate Tax Guide 2025, which provide detailed coverage of the WHT treatment of cross-border technical service payments. These

7 Here and elsewhere in the report, we refer to the Global North as high-income countries (according to World Bank classification) or OECD countries. Global South refers to the rest of the countries. The terms advanced economies and developing economies may also be used interchangeably for Global North and Global South economies.

8 Liu, Li, Alexander Klemm, Parijat Lal, "Shaping Services Trade: the Heterogenous Effects of Withholding Taxes," International Monetary Fund, 2025.

domestic law sources are further combined with treaty-level WHT data from the ICTD Tax Treaties Explorer and the OECD treaty-based WHT rates database, which offer consistent and comparable information on agreed WHT caps for technical services across a large set of double taxation treaties.

We acknowledge that the scope and operation of Article 12AA are potentially broader than the conventional treaty definition of technical services, encompassing a wider range of professional, managerial, and other service activities. **However, using these rates provides a reasonable and policy-relevant approximation of how Article 12AA could be implemented in practice thanks to two reasons.**

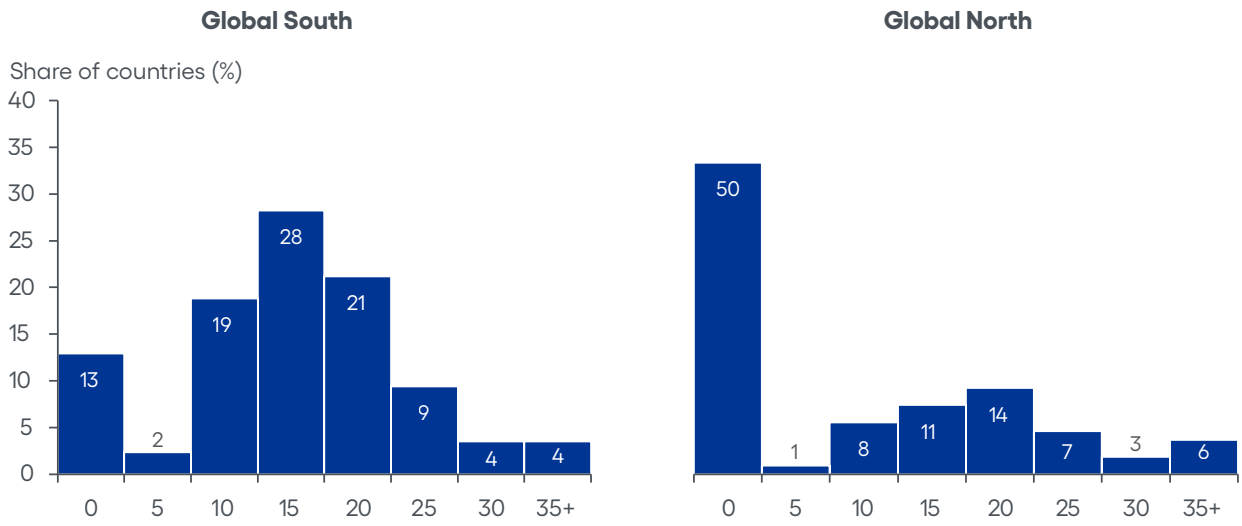
First, the same statutory WHT rates for "technical services" are also applied in practice to a broader range of services, including managerial, consultancy, and other professional services in many jurisdictions such as Bangladesh, Kenya, Nigeria, and Zambi. In other jurisdictions such as Malaysia, Tanzania and Vietnam, the domestic WHT provisions are drafted more broadly to cover payments for services to non-resident contractors as a general category, subject to specific statutory exclusions. In this context, WHT rates associated with technical services frequently operate as a de facto benchmark for the taxation of cross-border services more generally.

Second, the difference between WHT rates currently applied to technical services and those that could apply to a broader set of services is, a priori, ambiguous. On the one hand, the broader scope of services potentially covered under Article 12AA could, in principle, be associated with lower average profitability and thus lead to lower negotiated WHT rates. On the other hand, current domestic tax practice demonstrates that WHT rates on technical services can be lower than those applied to other cross-border services in some cases. For example, India applies a WHT of 10% on professional services, compared with 2% on technical services, illustrating that a broader service definition does not automatically imply a lower WHT rate.

Finally, **Annex 3.1 presents an additional robustness analysis using assumption of lower WHT rates** to address concerns that Article 12AA may be interpreted more narrowly or aligned with digital services taxation. In this alternative scenario, Article 12AA adoption is modelled using significantly lower WHT rates and treaty caps, broadly consistent with the statutory rates observed under various WHT-based digital services tax regimes. This ensures that our results are not driven by a single calibration choice and allows us to assess outcomes under a lower-rate implementation of Article 12AA.

Treaty provisions alone, however, are not sufficient to give effect to WHT on cross-border services. Source countries must also have compatible domestic legislation in place. To impose WHT on cross-border services, source countries also need to adapt to relevant domestic regulations. Around 13% of Global South countries have not yet introduced domestic legislation for WHT on technical or professional services (Figure 2). Among countries that have implemented such measures, statutory rates are most frequently observed in the 10–20% range, with a median rate of 15% and a maximum of 35%. In comparison, countries in the Global North are less likely to apply domestic WHT on technical service imports, with around half of these economies yet to do so. Where WHTs do exist, statutory rates tend to be lower, with a median of around 10%.

Figure 2: Distribution of domestic WHT on technical services, by Global South/North



Note: 0 rate refers to countries not having domestic WHT in place on technical services imports.
Source: Oxford Economics/OECD/EY/PwC

Taken together, the operation and widespread adoption of Article 12AA would affect the taxation of cross-border services through three interrelated channels. First, by allowing source-based taxation without a PE requirement, Article 12AA weakens the central role of PE-based nexus rules in allocating taxing rights over services. Second, its impact depends on treaty-level outcomes, particularly the WHT caps negotiated bilaterally between countries. Third, the effective application of Article 12AA ultimately hinges on domestic statutory frameworks and administrative capacity. These interacting elements imply that the economic and fiscal effects of Article 12AA are likely to vary substantially across countries and treaty relationships, underscoring the importance of scenario-based analysis grounded in existing treaty practice and domestic tax regimes. They are helpful guide for the scenario assumptions outlined in Section 2.2 from an international taxation perspective. Afterward, Section 3 will explicitly discuss the microeconomic and macroeconomic transmission channel of Article 12AA from an economic perspective.

2.2. Scenario assumptions

Given the legal context, this section sets out the assumptions behind our "Article 12AA adoption" (A12A) scenarios. The difference in tax parameters between this scenario and the "status quo" baseline (where all existing policies remain intact) will be used as policy shocks to model the potential economic impact of Article 12AA (as described) in section 4.

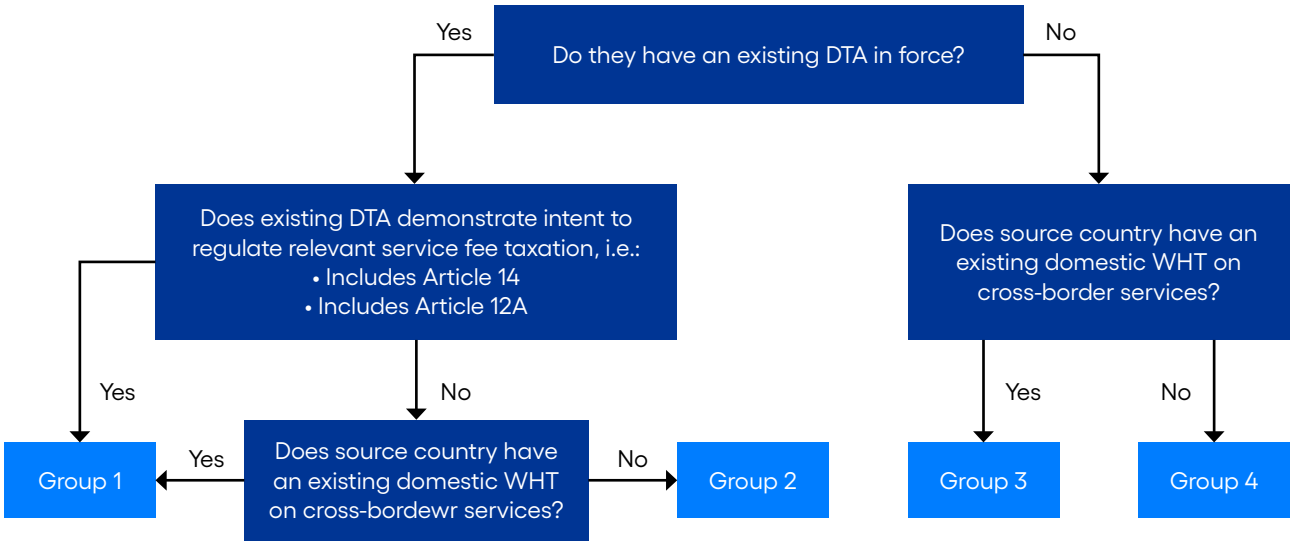
In the "Article 12AA adoption" scenario, we assume that the recent adoption of Article 12AA into the UN MTC will lead developing countries to pursue domestic tax reforms and to incorporate the article into their existing networks of bilateral DTTs. Informed by our legal analysis of Article 12AA, the process of developing this scenario seeks to ensure the assumptions are realistic and account for the complexity of Article 12AA adoption. Our scenario development also draws on publicly available data to contextualise the policy shocks according to each country pairs, bearing in mind the inherent political and economic interests that impact the adoption of international tax reforms and treaty negotiations.

The policy impact of Article 12AA will depend on two key dimensions: domestic tax legislation and DTTs. To capture the variation across countries, we group country pairs based on:

1. **Current state of domestic legislation to tax service fees in the source country:** Whether or not the source country already imposed a WHT on relevant service fees or has general source rules for taxing cross-border services. This matters because, depending on existing treaty provisions, source countries with an existing domestic WHT on relevant service fees will experience different impacts compared to those without in our proposed policy scenario.
2. **Existence of a DTT and the likelihood of Article 12AA adoption:** Whether or not a DTT exists between the source country and its trading partner and the likelihood that the country pair will adopt Article 12AA into their DTT. This dimension allows us to capture the extent of the potential mitigating impact of incorporating Article 12AA into DTTs. Since taxes specified in the DTT would qualify for a tax credit or exemption, adoption of Article 12AA into DTTs would prevent double taxation where parallel provisions are enacted domestically.

The interaction between domestic tax legislation and DTTs gives rise to four separate groups of country pairs. Figure 3 visualises the decision tree for this classification, with detail on the specific assumptions provided thereafter.

Figure 3: Framework for classifying country pairs under the "Article 12AA Adoption" scenario



Source: Oxford Economics

In terms of **domestic legislation for taxing cross-border services, A12A scenario assumes that all Global South countries will enact domestic legislation for a WHT on cross-border services fees**. This is because developing countries have been major advocates of incorporating Article 12AA in the UN MTC in order to expand their taxing rights as source countries. They often sign DTTs with articles based on UN MTC that ensure the allocation of taxing rights is in favour of source countries. While it is unlikely that all developing countries will adopt such legislation due to various political, capacity, and enforcement constraints, this assumption allows us to assess the full extent of the impact of Article 12AA adoption.

For these developing countries, the WHT rate applied domestically is assumed to be 15% levied on a gross basis, reflecting the median WHT rate prevailing among the Global South. Developing countries that currently impose a domestic WHT rate of less than 15% are also assumed to raise their rate to this level.[9]

In contrast, countries in the Global North are assumed to not adopt the content of Article 12AA in their domestic law, as they generally align with the OECD MTC.[10] Similarly, jurisdictions identified as tax havens are assumed to retain their existing domestic tax structures, consistent with the practice that such jurisdictions typically do not expand source-based taxation of services. The list of tax havens follows Tørsløv et al. (2023)[11], which includes 41 countries or territories.[12]

In terms of DTTs, our A12A scenario factors in the likelihood of Article 12AA adoption, informed by our legal analysis and the present context of the country. We first assume in-force treaties with demonstrated intent to regulate relevant service fee taxation (Group 1 countries) to be updated to adopt Article 12AA. Our legal analysis suggests that strong adoption candidates of Article 12A are DTTs which (1) include Article 14 (independent personal services) or the PE definition has been expanded to incorporate it, and (2) include Article 12A (fees for technical services) or fees for technical services are included within the definition of royalties. They reflect a clear policy orientation toward source-based taxation of services and are therefore considered strong candidates for adopting Article 12AA.

In contrast, we assume unlikely adoption candidates to maintain existing DTT structure. Where no DTT currently exists between two countries (Group 3 and Group 4), we assume that new treaty will not be negotiated due to the cost, complexity, and time required to negotiate a DTT. Furthermore, all DTTs among Global North countries, which typically follow OECD MTC, will not be updated to include Article 12AA.

For all other existing DTTs without demonstrated intent to regulate relevant service fee taxation, it is not possible to objectively determine whether they will incorporate Article 12AA. This is due to the complex interplay of political, economic, and bilateral negotiation factors, which vary significantly across country pairs and treaty contexts.[13]

For these cases, we check whether an existing domestic WHT on technical service fees is in place. If yes, we treat them the same as strong adoption candidates (in Group 1) and assume DTTs are updated to include Article 12AA. This is because in almost all cases where there is an existing DTT and where a WHT on relevant service fees is imposed domestically (i.e., on fees covered by Article 12A and Article 14), these provisions are included in the DTT. These uncertain adoption cases account for only around 1% of in-scope trade flow and so are not expected to have a material impact on headline figures given the negligible overall trade volume.

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9 While some countries may already apply a WHT on fees for other relevant service types, these vary widely and cannot be systematically identified in available data. We use existing rates on cross-border service fees as these provide the closest available proxy for rates on services fees within scope of Article 12AA.

10 Given their policy alignment with the OECD framework, middle-income OECD member countries are treated as high-income countries in this exercise. These include Colombia, Costa Rica, Mexico, and Türkiye.

11 Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman, "The Missing Profits of Nations", Review of Economic Studies (2023) 90, 1499-1534, 2023.

12 Andorra, Anguilla, Antigua and Barbuda, Aruba, The Bahamas, Bahrain, Barbados, Belize, Bermuda, the British Virgin Islands, the Cayman Islands, Cyprus, Gibraltar, Grenada, Guernsey, Hong Kong, the Isle of Man, Jersey, Lebanon, Liechtenstein, Macau, Malta, Marshall Islands, Mauritius, Monaco, the Netherlands Antilles, Panama, Puerto Rico, Samoa, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent & Grenadines, Turks and Caicos, Vanuatu

13 Mpoha *Article 12B of the UN Model (2021)* at 238; Tax Law Club "Taxing the Digital Economy: A Comparative Analysis of International and Indian Taxation Practices" (03 November 2023) Tax Law Blog.

In addition, cases with an existing DTT and no existing domestic WHT on technical service fees (Group 2) account for less than 1% of in-scope trade flow. For modelling purposes, we assume these DTTs will also be updated to include Article 12AA. While it is possible that some DTTs in this group are not updated, this assumption reflects the spirit of the scenario in which Article 12AA becomes commonplace. While we assume adoption of Article 12AA across all DTTs, the implied policy change for Group 2 will be different from country pairs in Group 1. This is because source countries in Group 2 switch from having no domestic WHT to implementing domestic WHT on service fees in the counterfactual scenario.

As the model Article 12AA leaves the percentage limit to be established by contracting states through bilateral negotiations, A12A scenario assumes this cap will vary between country pairs in line with the norms observed among recent DTTs that incorporate Article 12A. Specifically, it assumes the cap on WHT rates for services will be set at 10% for South-South DTTs, which reflects the most common cap for WHT on technical service fees among recent South-South DTTs (since 2018) recorded in ICTD's Double Tax Treaties. For North-South deals, it assumes a cap of 3%, reflecting the balance of negotiation power between Global North and Global South countries and the trend currently observed in rate caps among other types of WHTs in existing DTTs (see section 2.1).

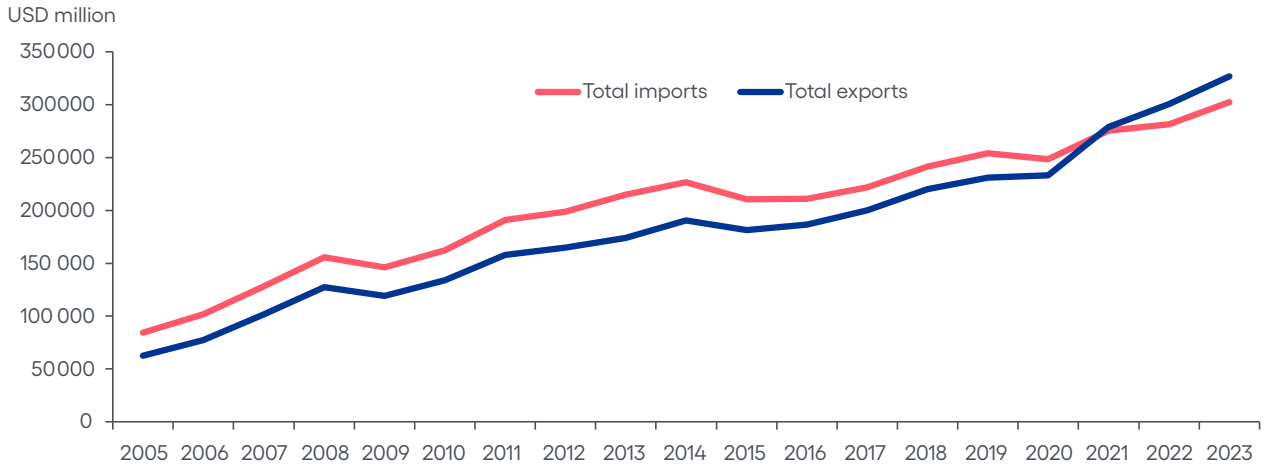
Section 3
Economic transmission channels

3.1. Cross-border services trade

Against the backdrop of evolving international tax rules and the growing economic importance of services, understanding current patterns in cross-border services trade is essential for assessing the potential implications of Article 12AA.

Cross-border services trade in the Global South has grown rapidly in the last two decades (Figure 4). Box 2 explains our approach to quantify the cross-border service trade flows relevant to the scope of Article 12AA. Trade landscape remains particularly concentrated in professional services and predominantly North-South in nature. Professional services – including research and development, management and trade-related services – have historically dominated Global South's services trade, accounting for 78% of the imports and 91% of exports. Non-insurance financial services make up the rest of the trade. At the same time, trade links remain heavily skewed toward advanced economies, with the Global North accounting for over 80% of both imports and exports of the Global South.

Figure 4: Global South technical services trade, 2005-2023



Source: Oxford Economics

At its core, Article 12AA directly alters the tax treatment of cross-border service imports. These changes in tax treatment could increase the tax burden for import transactions due to potential double taxation and limits of tax relief mechanism. Beyond statutory rates, administrative and compliance aspects – such as documentation requirements, treaty eligibility procedures, refund mechanisms, and uncertainty over tax credit availability – may also increase the cost of cross-border trade. Furthermore, the gross-basis taxation of services – such as WHT under Article 12AA – creates a cash-flow wedge that is largely insensitive to firm profitability, increasing the risk of economic double taxation where relief mechanisms are incomplete or delayed. The increase in costs associated with cross-border trading can incentivise domestic substitution for imports and divert trade to imports from less-stringent origins (Brown, 2018).

Recent empirical research confirms the negative impacts of WHT on technical services on cross-border services. Liu et al. (2025)[14] find that a one percentage point (ppt) increase in the WHT for technical service fees reduces trade in business and non-insurance financial services by 1.0%. They also find that compliance and establishment costs linked to setting up service trade relationship can be material, particularly relative to when comparing to the impact of similar provisions applied to other income types. Last but not least, theory suggests that higher WHT could induce both domestic substitution and trade diversion. However, the empirical evidence from Liu et al. (2025) indicates that the dominant response is reallocation across foreign suppliers rather than substitution toward domestic services. This may reflect the fact that many technical and professional services are highly specialised, differentiated, and embedded in firm-specific or cross-border production networks, making domestic provision an imperfect substitute for imported services.

The erosion of PE rules can have contradicting impacts on cross-border services trade, in theory. On one hand, the current reliance on physical presence tests provided under Article 5(3)(b) may create uncertainty for firms that look to supply services into a market without triggering PE status. Thus, the removal of physical thresholds can enhance legal certainty by clarifying taxing rights ex ante. On the other hand, it may also increase the fixed costs of market entry for foreign service providers. Compliance with WHT obligations, registration requirements, and associated reporting can represent a non-trivial burden. These fixed costs may discourage exploratory or low-volume service provision. Furthermore, they discourage digitally delivered or project-based services, where firms traditionally relied on the absence of a permanent establishment to supply services without establishing a formal tax presence. The theoretical ambiguity calls for empirical estimation to quantify the net impact. However, we are not aware of any study that quantifies the impact of PE provision on trade of any kind.

These changes apply not only to imports but also exports of countries in the Global South. In aggregate, weaker global demand for service imports translates into weaker export potential. Moreover, where policy changes are uneven across partners, differences in effective tax rates can induce trade diversion within services. Importers have incentives to reallocate contracts toward suppliers located in jurisdictions that face lower WHT or benefit from more favourable treaty caps, all else equal.

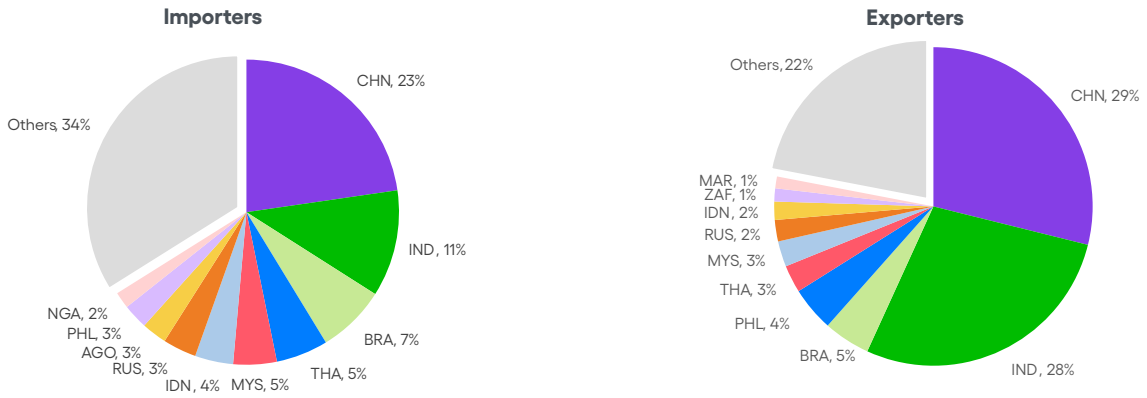
Since 2021, the Global South has switched from a net import position to become a net exporter of such services, effectively challenging the narrative around the Global South being the main beneficiary of increasing source country's leverage (Figure 4)**.** Over the past two decades, exports of professional and technical services grew at a compound annual rate of 9.6%, outpacing import growth of 7.4%. For major exporters, higher WHT abroad may translate into reduced competitiveness, lower export volumes, and increased foreign tax credits or deductions that erode residence-based corporate income tax revenues.

Nonetheless, global or regional aggregates risk obscuring important country-specific effects. In particular, the economic effects of Article 12AA will depend not only on whether a country is a net importer or exporter of technical services, but also on its position within these highly concentrated services trade networks, the structure of its treaty relationships, and the composition of its service exports and imports.

14 Liu, Li, Alexander Klemm, Parijat Lal, "Shaping Services Trade: the Heterogenous Effects of Withholding Taxes," International Monetary Fund, 2025.

Currently a few countries dominate trade in technical services in the Global South. Particularly, service exports are more geographically concentrated than imports. The top 10 exporters among Global South make up almost 80% of the total exports, with exports mainly originating from China (28.9%), India (27.9%), Brazil (4.7%), Philippines (4.5%) and Thailand (2.8%) (Figure 5). In comparison, the top 10 importers among Global South account for 66.1% of its total imports. Key importers include China (22.7%), India (11.3%), Brazil (7.3%) and Thailand (5.5%).

Figure 5: Importers and exporters among the Global South, by country



Source: Oxford Economics

Against this backdrop, this study complements the aggregate assessment with a set of country case studies focusing on the principal Global South actors in cross-border technical services trade. These case studies examine how differences in trade orientation, treaty networks, and tax system design shape the balance between source-based revenue gains and exporter-side revenue and competitiveness losses, thereby providing a more policy-relevant understanding of the heterogenous impacts of Article 12AA across different economies.

Box 2 Identifying & quantifying cross-border services using official statistics

Quantifying cross-border services trade relevant to Article 12AA presents significant data challenges. Unlike goods trade, services transactions are less granular, more heterogeneous, and often poorly captured in official statistics – particularly for developing economies. To address these challenges, this study draws on the World Trade Organization's Balanced Trade in Services (BaTiS) database, which provides harmonised bilateral services trade estimates consistent with countries' balance-of-payments statistics.

Consistent with the scope and intent of Article 12AA, the analysis focuses on two categories: other business services and non-insurance financial services. They capture the bulk of cross-border professional, technical, managerial, and advisory services – including research and development, management consulting, engineering, IT-related services, and trade-related services – that are most likely to fall within the broad definition of "fees for services" under Article 12AA(3). At the same time, these categories exclude services that are either explicitly carved out of Article 12AA or are unlikely to be subject to source-based withholding in practice, such as international transport, insurance, tourism, education, and health services.

This classification reflects both *de jure* relevance and *de facto* enforceability. From a legal perspective, the selected EBOPS categories align closely with the types of services that

Article 12AA is intended to cover. From an administrative and economic perspective, these services are also most plausibly subject to WHT enforcement in developing countries, where tax administrations typically focus on payments made to non-resident firms rather than on services consumed abroad (e.g. Mode 2 services such as tourism or education). The methodology is also consistent with recent empirical literature such as Liu et al. (2025)[15], who used the same approach to evaluate the impact of WHT on cross border services.

3.2. Macroeconomic channels

The effects of Article 12AA are not confined to the services directly subject to WHT. The economic implications of Article 12AA arise through multiple, interrelated channels. Its effects extend beyond statutory tax incidence to influence firms' behaviour, cross-border trade in services, investment decisions, and broader macroeconomic outcomes. Through firms' production and investment decisions, these direct impacts can spill over to foreign direct investment (FDI) and to trade in goods and services more broadly. These broader impacts could then have important knock-on effects on government revenues far beyond the direct taxes raised from WHT on cross-border services.

A large literature has emphasised the negative impact of WHT on international investment flows. For example, Egger et al. (2006)[16] find that a one-percentage-point increase in WHT rates is associated with a 1.6% reduction in multinational activity. Multinational enterprises (MNEs) rely heavily on intra-firm and third-party services to support investment activities, including headquarters functions, research and development, legal services, IT systems, and management oversight. Higher tax burden reduces after-tax returns and can weaken incentives to locate or expand activities in affected jurisdictions.

The relationship between PE provision and FDI inflows are more ambiguous. On one hand, stricter or more easily triggered PE rules can deter investment by increasing fixed costs of market entry. For smaller or exploratory investments, these fixed costs can be prohibitive, discouraging initial market testing and reducing the likelihood for service provision to evolve into a physical investment presence.

On the other hand, PE provisions may also induce FDI inflows by encouraging firms to shift the mode of service delivery. Traditionally, physical presence and fixed-base PE criteria have allowed many services to be supplied across borders under Mode 1 (cross-border supply) or Mode 4 (temporary movement of natural persons) without triggering PE exposure. As PE rules are broadened or become easier to trigger for service activities, the relative cost of supplying services under these modes increases. In response, MNEs may adjust by switching toward Mode 3 (commercial presence) – establishing a local subsidiary or branch through which services are delivered through commercial presence (Mode 3).

Empirical evidence on the net impact of PE provisions on FDI is scarce, partly due to the limited data on PE provision. Notably, Hearson et al. (2021)[17] do not find a statistically significant effect of PE clauses on average in double tax treaties on aggregate FDI inflows. Their measure of PE clauses is

15 Liu, Li, Alexander Klemm, Parijat Lal, "Shaping Services Trade: the Heterogenous Effects of Withholding Taxes," International Monetary Fund, 2025.

16 Egger, Peter H., Simon Loretz, Michael Pfaffermayr, and Hannes Winner, "Corporate Taxation and Multinational Activity," CESifo Working Paper Series No. 1773, 2006.

17 Hearson, Martin, Marco Carreras, and Anna Custers. "Using New Data to Support Tax Treaty Negotiation," International Centre for Tax & Development, 2021.

an aggregated index of the coded clauses in DTTs that define the threshold above which a foreign company's presence in a country becomes taxable (particularly those drawn from Article 5 of the model treaties).

Besides, changes in WHT and PE provisions may, in principle, influence investment diversion and treaty-shopping behaviour. Differences in treaty coverage, withholding tax caps, and PE definitions across country pairs could create incentives for firms to adjust the location or structure of service provision and investment. However, empirical evidence on such behaviour in the context of services remains limited. The existing literature on treaty shopping focuses largely on passive income streams – such as dividends, interest, and royalties – where explicit WHT and conduit structures are more prevalent (see Beer et al. (2019)[18] for a recent survey of the literature). By contrast, services income has historically been taxed under PE-based rules, and explicit WHT on services remain uncommon in current treaty practice, particularly among developing economies. As a result, while treaty-related reallocation is conceptually relevant, its quantitative importance for cross-border services is less well established than for other income categories.

Beyond FDI, the indirect effects extend to trade in goods and non-taxed services. Professional and technical services are deeply embedded as intermediate inputs in manufacturing, infrastructure, logistics, and digital trade. An increase in the cost of these inputs raises downstream production costs, potentially reducing export competitiveness and dampening participation in global value chains. Consistent with this mechanism, Liu et al. (2025) find that a one-percentage-point increase in applicable WHT on technical service fees reduces bilateral services trade by around 0.7%, indicating that tax-induced frictions in services markets can propagate across the broader trading system.

Furthermore, the combination of reduced services trade and weaker investment has broader induced effects that propagate through the overall economy. First, reduced access to high-quality and competitively priced services lowers firm-level productivity, particularly in service-intensive and knowledge-based activities. Second, lower FDI inflows constrain technology transfer, managerial know-how, and access to international networks. For manufacturing, Hoekman and Shepherd (2015)[19] find that a 10% improvement in services productivity is associated with an increase in manufacturing productivity of 0.3%. Third, income effects arising from weaker trade and investment reduce aggregate demand, further dampening economic activity.

18 Beer, Sebastian, Ruud de Mooij, Li Liu, "International Corporate Tax Avoidance: A Review of The Channels, Magnitudes, and Blind Spots," Journal of Economic Surveys, Volume 23, Issue 3, 660-688, 2019.

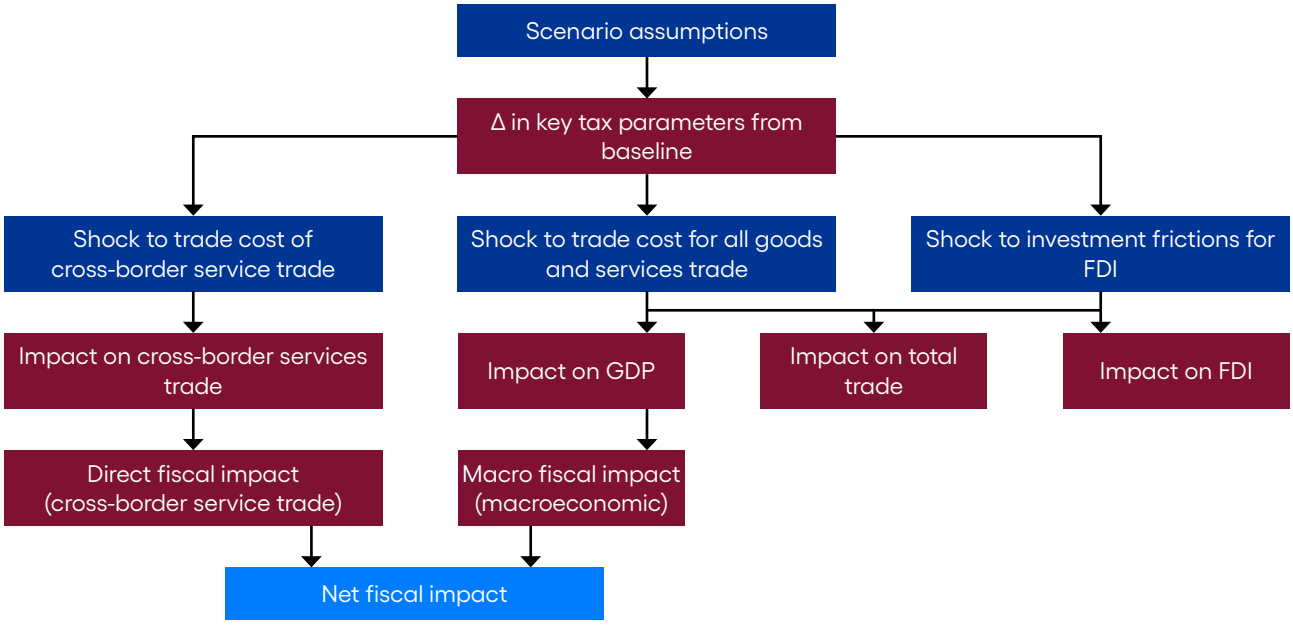
19 Hoekman, Bernard and Ben Shepherd, "Services Productivity, Trade Policy and Manufacturing Exports," The World Economy, Wiley Blackwell, vol. 40(3), pages 499-516, 2017.

Section 4
Modelling approach

4.1. Estimating economic impact

This section outlines the scenario-based modelling approach, covering the scenario narrative, calibration, and methods used to simulate economic and fiscal impacts. Figure 6 provides a schematic overview of the steps involved.

Figure 6: Overview of modelling approach



Source: Oxford Economics

We focus on the long-run, structural impacts of Article 12AA adoption scenario for the Global South. Although we only report results for the Global South, the scenario was constructed within a global bilateral framework with consistent assumptions applied across all economies, including high-income countries. Results were then consolidated into a Global South aggregate for presentation in this report. Outcomes are therefore reflective of the full range of global interactions. Annex 2 provides more specific details on the modelling methodology.

The starting point for our modelling is the calculation of relevant tax parameters in the current baseline and in the A12A scenario. Tax parameters and institutional features are grounded in internationally recognised data sources to ensure consistency and policy realism. The analysis draws on an extensive data collection effort covering statutory WHT rates on services, treaty-based caps, corporate income tax (CIT) rates, and methods of double tax relief across countries. Given the complexity of international tax rules, the objective is not to replicate every idiosyncratic feature of individual treaties, but to construct a comparative and economically meaningful representation of the tax burden faced by cross-border service providers.

To quantify the impact on trade and investment frictions, we combine the difference in tax parameters between the two scenarios with semi-elasticities from the literature and our gravity-based econometric estimation. This top-down approach captures not only the legal (de jure) changes but also their practical (de facto) effects. The calculation generates three sets of shocks for each country pair: (i) changes in trade costs for cross-border services, (ii) changes in trade costs of non-fuel goods and services, and (iii) changes in frictions for bilateral FDI.

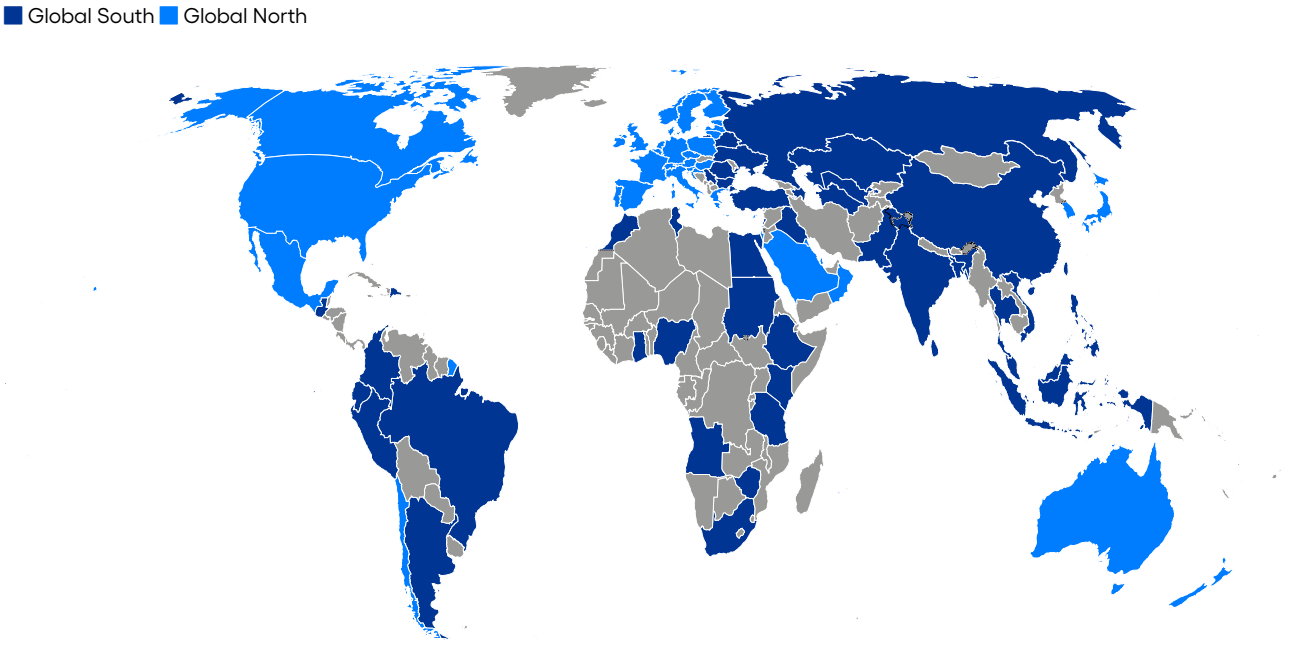
In our main specification, we do not explicitly model PE-related effects given the theoretically ambiguous effects of changes in PE rules and the absence of robust empirical evidence on their economic impact. This specification would align with the empirical findings from Hearson et al. (2021) who do not report a statistically significant impact of PE clauses (measured by an index of the presence and stringency of PE clauses) on FDI flows. Instead, we address the potential role of PE treatment in the robustness section (Annex 3). In that section, we present novel estimates of the impact of services PE provisions using cross-country variation in the duration thresholds specified under Article 5(3)(b) (services PE) across existing tax treaties. The result from this analysis confirms our overall finding that the net economic and fiscal impact of Article 12AA is indeed an important channel, and could potentially far exceed direct gains from imposing and raising WHT on cross-border services.

After calibrating the potential trade and investment shocks to each country pair, we apply two structural gravity models to model their economic impact. The first model estimates effects on cross-border services based on the Universal Gravity framework proposed by Allen et al. (2020).[20] It uses bilateral data for approximately 143 countries to capture the full range of trade outcome for developing countries. The second model jointly captures the macroeconomic impact of trade and investment frictions using Larch and Yotov (2025)[21] model, adapted to include services trade flows. Its relatively more stringent requirement limits our scope to 88 countries, including 44 Global South countries and a good representation of geographical regions and finer income brackets (low/lower middle/upper middle-income countries) (Figure 7). Simulated results from both models are then integrated and benchmarked against historical data for 2023, drawing on the WTO BaTiS database and the Oxford Economics' Global Economic Model.

20 Allen, Treb, Costas Arkolakis, and Yuta Takahashi, "Universal Gravity," Journal of Political Economy, Volume 128, Number 2, 2020.

21 Larch, Mario and Yoto V. Yotov, "Deep Trade Agreements and FDI in partial and General Equilibrium: A Structural Estimation Framework," The World Bank Economic Review, 39(2), 281-307, 2025.

Figure 7: Countries coverage, by Global North/South status



Source: Oxford Economics
Note: Grey regions are those not covered in the analyses.

4.2. Estimating fiscal impact

The fiscal impact assessment is divided into two major components. The first major component is the **direct impact on tax revenue from technical services trade**. It quantifies how government revenues derived from the taxation of technical and professional services differ between the baseline scenario and the Article 12AA Adoption scenario.

On the importing side, government revenue is affected primarily through changes in WHT receipts on payments for cross-border technical services. At the same time, the potential substitution of imports for domestic service providers also generates additional CIT revenues, as profits from locally supplied services become taxable on a net basis in the importing country. The magnitude of this effect depends on the extent of import substitution, CIT rate and the profitability of domestic service providers.[22]

As countries are also exporters of technical services, the analysis accounts for corresponding revenue effects on the residence side. Changes in WHT abroad affect the taxable profits of resident service providers and, consequently, domestic CIT revenues. This calculation, done at the bilateral level, also factors in the prevalent method of tax relief. Where a DTT is active, we assume that double tax relief will be implemented through crediting method. We further collect data on unilateral relief mechanism (such as Foreign Tax Credits or deductions) that apply to non-DTT flows, drawing on information from EY Worldwide Corporate Tax Guide and PwC Worldwide Tax Summaries.

The second major component of our fiscal impact analysis is the indirect impact on domestic tax revenues. This reflects the revenue effect of reduced economic activity in the domestic markets of the 88 countries included in our model. We estimate this using a reduced-form approach that links estimated GDP changes to tax revenues through tax buoyancy assumptions. Tax buoyancy measures the responsiveness of tax revenues to changes in GDP, allowing us to capture both

22 To simplify the analysis, we assume a profit margin of 15% on gross cross-border service fees.

automatic changes in tax revenues due to economic conditions and adjustments caused by tax policy. In other words, it indicates how much tax collections rise or fall for each percentage change in economic output.

For this analysis, we draw on buoyancy estimates from Cornevin et al. (2024)[23] who examine the long-run responsiveness of tax revenues to economic activity using seven different estimators across a sample of 172 countries, including a range of economy types. Their findings indicate that the average long-term reaction of tax revenues to GDP hovers around one, consistent with previous cross-country studies (Gupta et al., 2022;[24] Deli et al., 2018;[25] Belinga et al., 2014).[26]

We then estimate the macro fiscal impact by applying tax buoyancy estimates to the GDP impacts from by our general equilibrium simulation in Section 4.1. To translate this impact into nominal USD, we use the nominal GDP (in USD), revenue-to-GDP ratios from Oxford Economics' Global Economic databank and the share of non-extractive sector within overall revenue for each country using IMF's World Revenue Longitudinal Database.

23 Antoine Cornevin, Juan Sebastian Corrales, and Juan Pablo Angel Mojica, "Do tax revenues track economic growth? Comparing panel data estimators," *Economic Modelling*, 2024.

24 Gupta, Sanjeev, João Tovar Jalles, and Jianhong Liu. "Tax buoyancy in sub-Saharan Africa and its determinants," *International Tax and Public Finance* 29, 2022.

25 Yota Deli, Abian Garcia Rodriguez, Ilias Kostarakos, and Petros Varthalitis. "Dynamic tax revenue buoyancy estimates for a panel of OECD countries,". No. 592. ESRI Working Paper, 2018.

26 Vincent Belinga, Dora Benedek, Ruud A. De Mooij, and John Norregaard. "Tax buoyancy in OECD countries," *International Monetary Fund*, 2014.

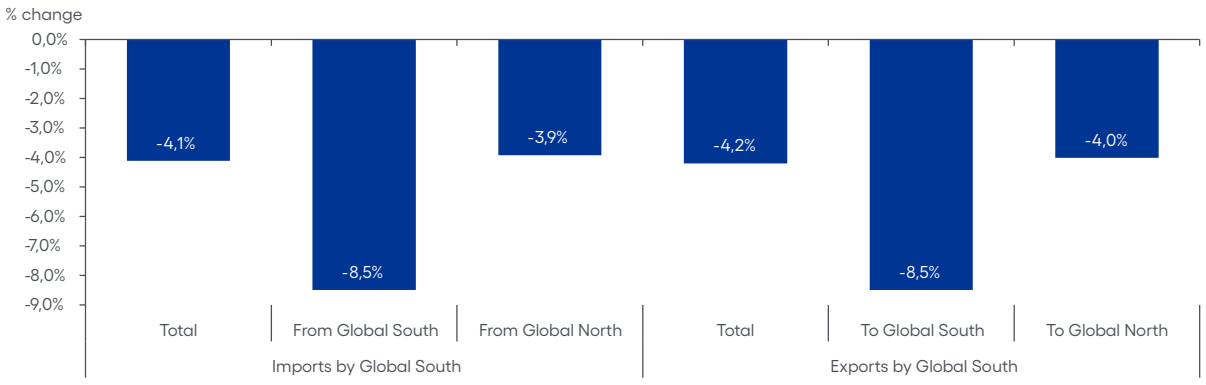
Section 5
Results and policy implications

5.1. Impact on cross-border services trade

The modelling results indicate that the introduction of Article 12AA has a material impact on economic activity, operating first and foremost through a direct cost channel on trade of technical services. **Total annual imports of technical services by the Global South would fall by around 4.1% in the A12A scenario compared to the "status quo" baseline** (Figure 8). This "trade destruction" impact reflects the broad-based increase in tax-induced trade frictions for these services. Higher trade costs increase the effective price of cross-border service provision, leading to a contraction in aggregate trade. Income effect due to weaker macroeconomic impacts also contributes to this, but to a lesser extent. Some of the reduction in import is offset by import substitution towards domestic sales. **The model result indicates that domestic sales of cross-border services would increase by around 0.2%.**

This aggregate effect, however, masks important compositional shifts towards imports from Global North (trade diversion). Service imports from the Global South would decline by close to 8.5%, compared with a smaller reduction of around 3.9% for imports from the Global North. This asymmetry partly reflects differences in the magnitude of the trade shocks applied: our estimates indicate that the effective increase in trade frictions faced by Global South importers is equivalent to an ad valorem tariff increase of about 5.3 ppt on imports from other Global South countries, compared with around 3.8 ppt on imports from Global North partners. This divergence is driven primarily by sharper increases in effective bilateral WHT rates in South–South trade relationships.[27]

Figure 8: Impact on total cross-border technical services trade by Global South, A12A scenario vs. baseline



Source: Oxford Economics

A similar pattern emerges on the export side. Cross-border service exports to Global North would decline by roughly 4.0%, while exports to the Global South fall even more sharply – by around 8.5% (Figure 8). This asymmetry reflects both the higher effective WHT rates applied to South–South flows (that raise bilateral trade costs), and the larger contraction in overall services demand within the Global South (that reduces the economic "gravitational" pull of Global South countries within

27 It should be noted this difference is partly premediated by the fact that the PE changes associated with A12A has slightly more disruptive impacts for North-South DTTs. In baseline, 48% of North-South deals currently follow OECD-style provisions, while 57% of South-South DTTs include duration-based PE as stipulated under Article 5(3)(b).

the structural gravity framework). This indicates that, while Article 12AA dampens cross-border services trade globally, its effects are unevenly distributed, with developing economies bearing a disproportionate share of the adjustment.

The sharp contraction in Global South services exports has important implications for developing economies that increasingly rely on cross-border services trade as a pathway for diversification, job creation, and productivity growth. Many Global South countries are actively promoting export-oriented services – such as professional, digital, and knowledge-intensive activities – as part of the longer-term development strategies that rely on learning-by-doing, skills upgrading, and integration into global value chains. By disproportionately dampening South–South and Global South export flows, Article 12AA risks weakening these dynamic gains and slowing the emergence of new export-based industries.

The results also suggest implications in the context of trade diversification and resilience, which have become increasingly important policy objectives amid heightened geopolitical uncertainty. By disproportionately reducing South–South services trade and reinforcing reliance on established Global North partners, Article 12AA may unintentionally entrench existing trade patterns rather than promote diversification and South-South economic partnership. This runs counter to the growing emphasis among developing economies on broadening their export base and reducing exposure to concentrated trade relationships, particularly in strategically important and knowledge-intensive services sectors such as Brazil (see Box 3).

Last but not least, decreased cross-border services trade could have negative implications for the long-term competitiveness and economic transformation agendas of many developing countries. Cross-border services are critical intermediate inputs for the development of modern sectors, and activities such as R&D, engineering support, and professional advisory services can accelerate technology adoption and capability building across domestic firms. More broadly, they support the diffusion of specialised skills and know-how, facilitate firm upgrading and compliance with international standards, and enable participation in higher value-added segments of regional and global value chains.

In the modelling framework of Section 5.2, these competitiveness effects are captured at an aggregate level, assuming that reductions in imported services affect competitiveness in the same proportional manner as other traded inputs. However, cross-border services are becoming increasingly integral to production processes and global value chains – a trend highlighted in the literature as the "servicification" of manufacturing and global value chains (e.g. Miroudot, 2019)[28]. Consequently, this assumption is likely conservative, and the adverse competitiveness effects of reduced services trade could be larger than those implied by aggregate trade shares alone.

Box 3 Country spotlight: Brazil

Brazil is one of the largest and most strategically important participants in cross-border services trade in the Global South. It consistently ranks among the top three Global South economies in both imports and exports of such services. In 2023, Brazil imported US$21.9 billion in technical services – equivalent to around 1% of GDP – while exporting US$14.3 billion (0.7% of GDP), underscoring its dual role as both a major services consumer and an emerging regional supplier.

28 Miroudot, Sébastien, "The Servicification of Global Value Chains: Evidence and Policy Implications", ADBI Working Papers 927, Asian Development Bank Institute, 2019.

Brazil already relies on withholding taxation as a key instrument for taxing cross-border services, both under domestic law and through its treaty network. Under the domestic law, payments to non-residents for technical services are subject to a 15% WHT, rising to 25% for payments to tax-haven jurisdictions. Brazil currently maintains 39 DTTs in force with other countries, who collectively account for only 36% of Brazil's cross border services imports (advanced economies account for 28%), 56% of non-fuel goods imports (advanced partners: 43%) and just 5% of total FDI inflows (advanced partners: 3%). Moreover, most of Brazil's DTTs already provide a cap WHT at 10-15%.

In this context, aligning statutory rates with Article 12AA has only a limited effect on Brazil's effective withholding burden. The "Article 12AA adoption" scenario assumes that the bilateral WHT with only six partners will be affected, with their rates increased from 0% to 3% as they are advanced economies. Eventually, this reform increases Brazil's trade-weighted effective WHT only marginally from the original 12.5% to 13.2%. Shocks in A12AA scenario mostly stems from the changes in PE treatment.

Brazil's macroeconomic adjustment is concentrated in cross-border services trade. Particularly, imports of cross-border services are projected to decline by 3.2%, reflecting both reduced overall demand and some partner reallocation. In addition to the aggregate effect, South-South trade cooperation – an important policy objective for Brazil - is also negatively affected by Article 12AA adoption. For example, its exports of cross-border service to the Global South are expected to decline by 2.8% compared to baseline. In contrast, its exports to the Global North are expected to decline by only 0.3%.

Economy-wide spillovers are also significant: GDP falls by 0.10%, while total imports and exports decline by 0.11% and 0.12%, respectively. FDI inflows are projected to drop slightly (-0.08%).

The large macro-fiscal effects – driven by weaker aggregate activity – result in a net fiscal revenue loss of around US$653 million. Higher WHT rates generate a gross revenue gain of approximately US$88 million annually (Figure 9). However, this is almost entirely offset by trade-related adjustments, including US$12 million from lower services imports ("trade destruction") and US$18 million from trade diversion. Domestic sales also shrink due to weaker overall domestic demand in the sector, leading to US$million less in CIT. Overall, indirect macro-fiscal effects – driven by weaker aggregate activity – amount to US$707 million, resulting in a net fiscal revenue loss of around US$653 million. This highlights that, for Brazil, the fiscal consequences of Article 12AA are driven less by direct WHT changes and more by broader economy-wide adjustments.

Figure 9: Revenue impact of A12A scenario vs. baseline in Brazil

Source: Oxford Economics

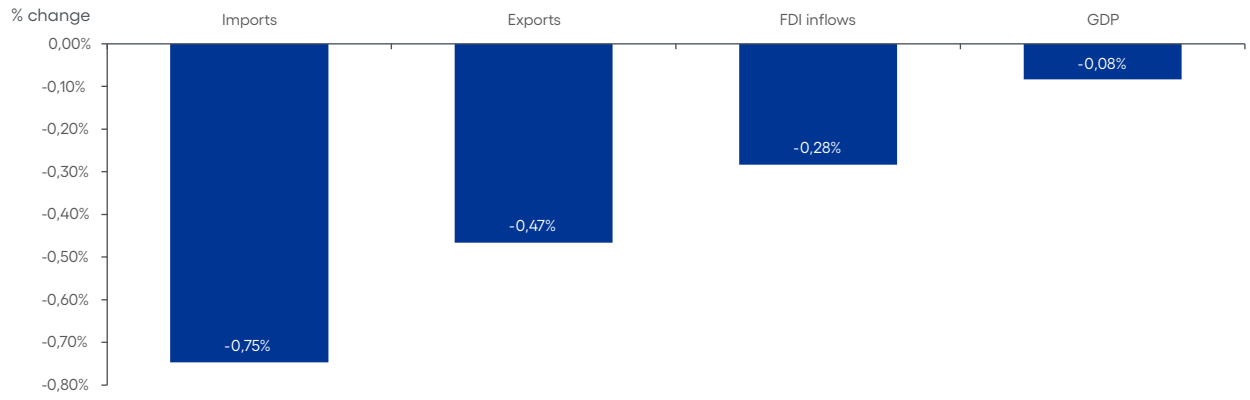
5.2. Macro economic impacts

After assessing the impact on cross-border services sectors reported in Section 5.1, this section considers the macroeconomic impacts originated from changes in bilateral trade and investment frictions (as induced by the adoption of Article 12AA). These changes operate through relative price and market-access channels: higher trade costs raise the delivered price of imported services and reduce exporters' competitiveness, while higher investment frictions lower the expected net returns to multinational activity. Firms respond by reallocating expenditure across domestic and foreign suppliers and by adjusting export and location decisions. As a result, cross-border services trade contracts, the cost of imports used as intermediate inputs rises, and inward FDI declines as multinational firms scale back investment and the expansion of foreign affiliates.

The modelling suggests that the Global South's annual imports of non-extractive goods and services decline by around 0.75%, while exports fall by approximately 0.47% under the A12A scenario relative to the baseline (Figure 10). These declines matter beyond their direct contribution to GDP and net exports. For many developing economies, trade integration is a core mechanism for upgrading – enabling access to specialised intermediate inputs and embedded know-how, supporting participation in global and regional value chains, and facilitating learning-by-doing in export-oriented sectors. A reduction in imports can therefore constrain firms' ability to adopt new technologies and processes, while weaker export performance can slow productivity convergence, dampen incentives for quality upgrading, and reduce job creation in higher-productivity tradable activities.

In parallel, the model indicates annual inward FDI would decline by around 0.28%. Higher cross-border tax frictions on technical and professional services reduce after-tax returns on service-intensive activities, including intragroup services, project management, and headquarters functions. This directly affects multinational firms' location and expansion decisions. This finding is sensitive to the chosen estimate, however. Using a different specification from the same study (Hearson et al. [2021]), our modelling suggests that FDI inflows could fall by -0.78% instead.

Figure 10: Macroeconomic impact for the Global South, A12A scenario vs. baseline



Source: Oxford Economics

Changes in trade and investment then propagate through the economy via general-equilibrium adjustment mechanisms embedded in the structural gravity framework. Reduced access to competitively priced and specialised services raises input costs for downstream sectors, weakens export competitiveness, and lowers scale and productivity in tradable industries. At the same time, lower inward FDI slows capital accumulation, technology transfer, and productivity spillovers associated with multinational activity. Through input–output linkages, income effects, and market-

clearing conditions, these adjustments spill over beyond the directly affected services sectors and translate into lower real income and output. Non-extractive GDP therefore declines as an equilibrium outcome reflecting the combined effects of higher production costs, weaker trade integration, and reduced investment, rather than as a separate or externally imposed assumption.

Our modelling suggests that non-extractive GDP of the Global South may decline by around 0.08% relative to the current baseline. The contraction in non-energy trade and the sharper pullback in FDI reduce capital accumulation, productivity spillovers, and overall economic efficiency. While modest in headline terms, this GDP effect reflects the cumulative impact of higher service costs, weaker trade integration, and reduced investment, highlighting the central role that services trade and FDI play in supporting broader economic output and growth. These economy-wide effects matter from a development policy perspective. For example, the contraction of non-extractive economic activities can work against policy efforts to diversify the economic bases for resource-dependent countries such as Nigeria (see Box 4).

The model indicates that the trade channel is the dominant driver of the overall impact. In a separate simulation where only the trade channel is activated, the resulting contraction in output reaches roughly 84% of the magnitude observed in the full Article 12AA scenario. This finding highlights an underappreciated aspect of the current literature, which has tended to emphasise the investment channel as the primary transmission mechanism linking international tax policy to macroeconomic outcomes. By comparison, the role of trade – particularly cross-border services trade – has received relatively limited attention. As services account for a growing share of global trade and play an increasingly central role as intermediate inputs into production and investment, the results suggest that trade-related channels may become an ever more important driver of economic impacts.

Box 4 Country spotlight: Nigeria

Nigeria's position as a net importer of technical services reflects a persistent dependence on foreign expertise. In 2023, technical services imports totalled US$5.3 billion, equivalent to 1.0% of GDP. Nigeria's imports are concentrated among a small group of economies, with the UK, US, India, France and the Netherlands jointly accounting for 60.2% of the total technical services imports. By comparison, technical services exports amounted to US$2.0 billion, representing 0.4% of GDP.

Under the Companies Income Tax Act and reinforced by the Deduction of Tax at Source Regulations 2024, payments by Nigerian residents to non-residents for technical services are subject to a 10% WHT. Nigeria's 15 in-force DTT helps limit its trade-weighted effective WHT rate at around 5.0%. These include several key technical-services partners such as the UK, France and the Netherlands. Collectively, Nigeria's treaty partners account for 48% of technical services imports, 45% of non-fuel goods imports, and 4% of inward FDI. Where no treaty exists, foreign tax paid may only be claimed as a deductible expense.

Under the "Article 12AA adoption" scenario, Nigeria experiences an increase in its effective tax burden on cross-border services imports as WHT become more binding across partner relationships. Effective WHT rate nearly doubles to 9.3%.

On the fiscal front, Nigeria records a net revenue gain of around US$207 million (Figure 11). The largest direct contribution comes from higher WHT receipts, with the "rate increase" component contributing approximately US$221 million. Trade-related adjustments effects are small in Nigeria's case, with only marginal offsets from changes in trade volumes and

partner reallocation. While impact on non-oil GDP is substantial, Nigeria's reliance on revenue from extractive sector implies relatively muted macro fiscal effect from Article 12AA adoption (-US$15 million).

Economy wide impact is material. FDI inflows fall by 0.6%, highlighting the sensitivity of investment to higher services-related frictions and the close complementarity between cross-border services and multinational activity. Total non-oil trade also contracts by 0.6% for imports and 0.1% for exports. Annual GDP contracts by 0.11%, higher than the 0.08% average for the Global South in our sample.

These effects are relevant in light of Nigeria's development objectives. For example, Nigeria's National Development Plan 2021-2025 places diversification away from hydrocarbons and the attraction of foreign investment at the centre of its growth strategy. While Article 12AA delivers positive net fiscal revenues in Nigeria's case, the associated contraction in trade and investment may run counter to these longer-term objectives by weakening the channels through which non-oil productive capacity and export diversification are expected to develop.

Figure 11: Revenue impact of A12A scenario vs. baseline in Nigeria

Source: Oxford Economics

5.3. Impact on government revenue

Taken in isolation, the higher effective WHT rates increase tax receipt by 0.09% of current revenue for Global South economies, equivalent to around US$7.0 billion for the countries in our sample (Figure 13).[29] Effective WHT rate on imports to the Global South (weighted by trade volumes) increased from 7.1% in baseline to 9.7% in A12A scenario. This rate effect reflects two distinct policy channels embedded in Article 12AA. First, several Global South countries introduce or materially increase domestic WHT on cross-border services where such taxes were previously absent or set at very low levels. Second, Article 12AA allows countries to modify the operation of existing DTTs by introducing an explicit cap on service-related WHT, thereby enabling higher effective rates to be applied within treaty relationships that previously constrained source-country taxation. Country heterogeneity across these channels implies that the potential direct gains from WHT increase on current trade patterns may vary significantly. For example, this channel could raise government revenue by 0.9% in Thailand (see Box 5) but only 0.01% in Brazil (Box 3).

29 For the remainder of this section and throughout the report, monetary figures (reported in nominal U.S. dollars) for the Global South represent the aggregate of 43 Global South economies in our economy-wide modelling sample.

However, trade adjustments reduce this mechanical revenue effect for service imports by around US$249 million for the Global South, narrowing the gap between statutory and realised revenues. On one hand, import substitution into domestic service provision provides a boost in domestic CIT revenue by US$565 million. On the other hand, the contraction in overall import volumes ("trade destruction") reduce the taxable base for WHT and offsets the revenue gains by US$545 million. At the same time, reallocation of imports towards less-taxed exporters ("trade diversion") further reduce revenue gains by US$270 million. The trade-weighted effective WHT rate on imports from other Global South countries would increase from 7.5% in baseline scenario to 12.7% in A12A scenario (4.9 ppt increase).[30] For comparison, the effective WHT rate on imports from Global North increased from 7.0 % to 9.1% (2.1 ppt increase) in A12A scenario.

Box 5 Country spotlight: Thailand

Thailand is a net importer of technical services, reflecting its reliance on foreign expertise in professional, engineering, IT, and management-related activities. In 2023, Thailand's imports of technical services reached US$16.6 billion, equivalent to around 3% of GDP, while exports were only US$8.8 billion, roughly half the import value. Thailand's imports are highly concentrated among a handful of economies, with the United States, Singapore, Ireland, India and China jointly accounting for 52% of its total technical services imports.

Currently, Thailand maintains an extensive DTT framework with more than 60 countries worldwide. These countries include all major ASEAN partners and large economies such as the United States, China and Germany. Collectively, these treaty partners account for 95% of technical services imports (advanced economy partners account for 76%), 96% of non-fuel imports (advanced economy partners: 58%) and 44% of FDI to Thailand (advanced economy partners: 30%). This wide treaty network plays a critical role in keeping Thailand's trade-weighted effective WHT rate low at an estimated 0.8% even though under domestic law, cross-border payments for technical or professional services are subject to a 15% WHT.

Under the "Article 12AA adoption" scenario, Thailand's bilateral WHT rates with DTT partner countries (out of 173) will rise from 0% to either 3% or 15%, depending on the partner country's income level. This reform increases Thailand's effective WHT to around 5%.

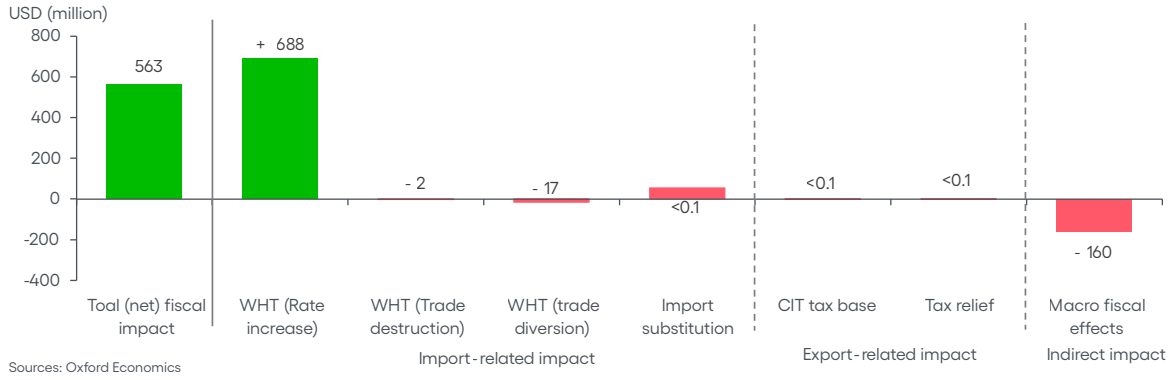
The rise in tax frictions is expected to generate moderate but broad-based macroeconomic impact across services trade, investment, and aggregate activity. Imports of technical services are expected to decline by 2.6%, reflecting higher costs and partial diversion of sourcing away from key partners such as China and India toward high-income countries with lower WHT exposure.

The most pronounced effect, however, occurs through the investment channel. Inward FDI falls sharply by 0.59% as higher services-related frictions reduce the profitability of foreign affiliates and weaken Thailand's attractiveness as a destination for investment. The contraction in FDI spills over into merchandise trade, with goods imports falling by 0.19% and exports by 0.35%. Together, these channels translate into a GDP loss of 0.19%, indicating that while the direct impact on services trade is relatively contained, the general-equilibrium amplification via FDI and intermediate services use is economically meaningful.

30 It is important to note that, in many double taxation treaties, withholding taxes on technical services are embedded within royalty definitions; our profiling of treaty-based withholding taxes therefore relies on ICTD and OECD treaty coding that explicitly accounts for this treatment.

From a fiscal perspective, the adoption of Article 12AA generates a clear net revenue gain for Thailand (Figure 12). Higher WHT on imported cross-border services yield gross revenue gains of US$688 million, while trade-related adjustments reduce collections only modestly. Even after accounting for macro-fiscal losses of US$160 million linked to weaker economic activity, the reform delivers a net fiscal gain of US$563 million.

Figure 12: Revenue impact of A12A scenario vs. baseline in Thailand



Source: Oxford Economics

At the same time, countries are not only importers but also **exporters of cross-border services**, which introduces additional fiscal effects on the residence side. Higher WHT abroad increase the foreign tax credits or deductions claimed by resident exporters, reducing net CIT revenues at home for the Global South by a total of US$8 million. Moreover, the contraction in cross-border service exports lowers the underlying taxable profit base, further offsetting residence-country corporate tax revenues by US$12 million in the Global South.

Finally, and most importantly, the reduction in economic activity generates sizable indirect fiscal consequences for the Global South, decreasing revenue by US$7.0 billion annually (Figure 13). Under the Article 12AA adoption scenario, weaker trade and investment reduce aggregate output and corporate profitability, eroding tax bases well beyond cross-border services. Our modelling indicates that these economy-wide effects alone lead to a substantial decline in government revenues, which outweighs the direct gains from higher WHT. This channel represents the largest fiscal cost associated with Article 12AA adoption, underscoring that the overall revenue impact is driven less by statutory tax design than by the broader macroeconomic response to higher services trade frictions.

Overall, once all direct and indirect effects are considered, the adoption of Article 12AA results in a net contraction in government revenues of approximately US$241 million per year across the Global South (0.003% decrease from current revenue level). Whereas the net fiscal impact varies significantly, South Africa presents a typical case where the macro fiscal effects are substantial and largely wipe out the potential gains from adopting Article 12AA and related components in its domestic and international tax regime (Box 6). This estimate reflects the combined impact of higher WHT receipts on cross-border services and offsetting adjustments through other channels, including changes in trade volumes, economic activity, and the associated tax bases. The finding underscores the importance of assessing international tax reforms from an aggregate, economy-wide perspective: focusing on gross withholding gains in isolation can be misleading, as interactions across trade, investment, and output channels ultimately determine the net fiscal outcome.

Figure 13: Revenue impact for the Global South, A12A scenario vs. baseline

Source: Oxford Economics

Given the novelty of Article 12AA, the findings should also be interpreted in light of several important limitations and uncertainties. As with any forward-looking, scenario-based analysis, the results rely on simplifying assumptions and are subject to uncertainty regarding behavioural responses, treaty negotiations, and policy implementation. In practice, the adoption of Article 12AA is likely to be gradual, uneven across countries, and shaped by political and administrative constraints. Experience with its predecessor, Article 12A – introduced in 2017 but incorporated into only two treaties to date, neither of which has entered into force – illustrates that widespread uptake of new model provisions should not be assumed.

Nonetheless, the overall net fiscal impact is found to be robust to alternative specifications. In our main specification, our modelling has systematically erred on the side of conservatism by drawing on estimates from publicly available research. The robustness tests displayed in Annex 4 showcase how the main findings remain qualitatively intact when adopting different specifications, estimates and incorporating new estimates of PE impact. They all highlight that our results are conservative and in all those cases, net fiscal impact is negative.

Furthermore, the scenarios analysed in this report are also conservative in several other respects. The modelling does not explicitly account for implementation frictions associated with gross-basis withholding, including incomplete, delayed, or capped foreign tax credits, over-withholding, refund difficulties, disputes, and administrative capacity constraints. To the extent that these factors raise effective tax burdens beyond those implied by statutory rates, the economic costs of Article 12AA could be larger than those estimated here.

Additionally, the analysis does not explicitly model treaty shopping or strategic re-routing of services transactions in response to differential WHT rates across countries. Historically, such behaviour has been limited for services, reflecting the predominance of PE-based taxation and the absence of widespread treaty-based withholding taxes. However, to the extent that Article 12AA leads to broader and differentiated adoption of WHT on services, the scope for treaty shopping may increase over time. If firms respond by restructuring service provision or routing payments through jurisdictions with more favourable treaty terms, the effective tax base in source countries could be eroded. In that case, the revenue-raising effects of WHT on cross-border services would be weaker than those estimated in this report, and would likely lead to an even more negative net fiscal impact for the Global South.

Box 6 Country spotlight: South Africa

South Africa is a net importer of technical and professional services, though trade flows are more balanced compared with other emerging economies. In 2023, services imports totalled US$5.0 billion, equivalent to 1.3% of GDP, while exports reached US$4.2 billion, or 1.1% of GDP. Import demand is concentrated among a small set of partners, namely the US, UK, India, Singapore and Ireland, which jointly account for nearly 60% of South Africa's technical services imports. This near balance in services trade reflects South Africa's dual role as both a user and provider of cross-border expertise.

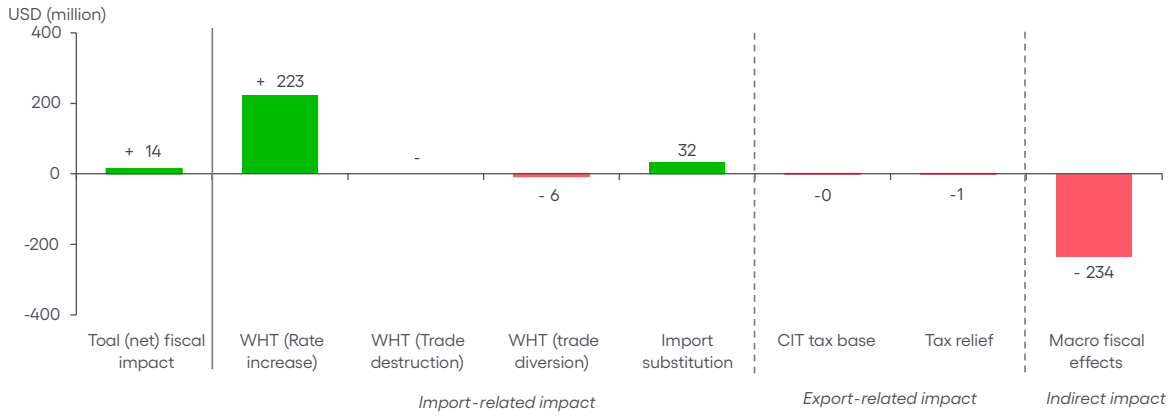
Unlike many peers, South Africa does not levy a withholding tax on service fees under domestic law. Payments to non-residents for technical services are taxable only where the service provider has a permanent establishment onshore and the income is South African-sourced, consistent with the business profits framework under most DTTs. In parallel, South Africa has treaties in force with nearly 80 countries, including major economies such as the US, UK, Netherlands and Australia. These treaty partners account for around 97% of South Africa's technical services imports, 95% of non-fuel goods imports (advanced economies: 58%), and 79% of inward FDI.

Aligning South Africa's tax regime with Article 12AA represents a departure from the existing framework. The "Article 12AA adoption" scenario, shift lifts South Africa's effective WHT from 0% to an estimated 4.5%, marking a sharp increase relative to its historical baseline.

The introduction of WHT from a zero-rate environment is projected to generate sizeable, economy-wide effects. Imports of technical services decline by 3.1%, as higher costs prompt firms to adjust sourcing patterns, including partial reallocation away from partners such as India toward countries with lower withholding exposure. The investment channel amplifies these effects: inward FDI falls by 0.7%, as increased services-related frictions reduce expected returns and weaken South Africa's appeal as an investment destination. The pullback in investment spills over into goods trade, with imports contracting by 1.0% and exports by 0.04%. Taken together, these adjustments result in a GDP loss of 0.2%, underscoring the importance of intermediate services and FDI linkages in South Africa's production structure.

From a fiscal standpoint, the reform yields a marginal revenue gain on a net basis. As South Africa begins to exercise stronger source-based taxing rights, WHT collections on imported technical services generate direct fiscal gains of approximately US$223 million (Figure 14). These gains are more than offset by indirect revenue losses of around US$234 million, reflecting weaker corporate profitability and lower economic activity following the decline in investment and trade. The resulting net fiscal impact amounts to roughly US$14 million, equivalent to 0.02% of current government revenue.

Figure 14: Revenue impact of A12A scenario vs. baseline in South Africa



Source: Oxford Economics

Section 6
Conclusions

This report provides, to our knowledge, the first comprehensive quantitative assessment of the potential economic and fiscal implications of adopting Article 12AA. While policy debates around Article 12AA have thus far been dominated by legal considerations, this analysis demonstrates that its implications extend well beyond cross-border service trade, affecting trade patterns, investment decisions, and economy-wide fiscal outcomes in material ways.

At a high level, the analysis indicates that Article 12AA can generate sizeable gross WHT revenues for developing economies – estimated at around US$7 billion annually for the Global South under the A12A scenario considered.

However, these gains are largely offset once behavioural responses and macroeconomic spillovers are taken into account. In our main specification, we estimate that – after accounting for trade adjustment and the resulting erosion of broader tax bases – **the aggregate net fiscal effect for the Global South turns slightly negative, with government revenues declining by around 0.003% (approximately US$241 million per year)** relative to the status quo baseline.

Importantly, this headline net loss should be interpreted as conservative in magnitude, given the modelling choices in the core specification. When we test alternative assumptions in robustness analysis – most notably by explicitly incorporating PE-related shocks – the estimated net fiscal impact becomes materially more negative. Under that robustness test, net government revenue for the Global South is estimated to fall by 0.09%, equivalent to approximately US$6.9 billion per year.

The report therefore highlights a central policy trade-off: the potential to raise revenue through stronger source-based taxation of services must be weighed against broader economic costs arising from reduced trade and investment and their implications for growth and fiscal capacity. Country spotlights further show that outcomes are heterogeneous, with impacts varying widely depending on trade structure, treaty coverage, and domestic tax design, highlighting the absence of a one-size-fits-all effect.

Finally, the scenarios presented are illustrative, not prescriptive. The parameter choices (including assumed rates and caps) are intended to quantify plausible magnitudes under internally consistent hypothetical regimes, not to recommend specific settings for any country or to identify optimal policy parameters.

The results point to a clear need for a stronger and more granular evidence base to inform policy discussions around Article 12AA – particularly as cross-border services grow in importance and as developing economies increasingly become exporters as well as importers of such services. Strengthening the empirical foundation for international tax reform will be critical to designing rules that are administrable, economically sustainable, and aligned with equitable development outcomes.

Annex 1
Draft article 12AA

Annex A

Draft article 12AA on Dealing with Cross-Border Services

(Revised draft of September 2024)

Fees for services

1. Fees for services arising in a Contracting State and paid to a resident of the other Contracting State may be taxed in that other State.
2. However, subject to the provisions of Articles 8, 12B, 15, 16, 17, 18 and 19, fees for services arising in a Contracting State may also be taxed in that Contracting State and according to the laws of that State, but if the beneficial owner of the fees is a resident of the other Contracting State, the tax so charged shall not exceed ___ per cent [the percentage is to be established through bilateral negotiations] of the gross amount of the fees.
3. The term "fees for services" as used in this Article means any payment in consideration for any service.
4. The provisions of paragraphs 1 and 2 shall not apply if the beneficial owner of fees for services, being a resident of a Contracting State, carries on business in the other Contracting State in which the fees for services arise through a permanent establishment situated in that other State, and the fees for services are effectively connected with:

   (a) such permanent establishment; or

   (b) business activities referred to in c) of paragraph 1 of Article 7.

In such cases the provisions of Article 7 shall apply.

5. For the purposes of this Article, subject to paragraph 6, fees for services shall be deemed to arise in a Contracting State if the payer is a resident of that State or if the person paying the fees, whether that person is a resident of a Contracting State or not, has in the Contracting State a permanent establishment in connection with which the obligation to pay the fees was incurred, and such fees are borne by the permanent establishment.
6. For the purposes of this Article, fees for services shall be deemed not to arise in a Contracting State if the payer is a resident of that State and carries on business in the other Contracting State through a permanent establishment situated in that other State and such fees are borne by the permanent establishment.
7. Where, by reason of a special relationship between the payer and the beneficial owner of the fees for services or between both of them and some other person, the amount of the fees, having regard to the services for which they are paid, exceeds the amount which would have been agreed upon by the payer and the beneficial owner in the absence of such relationship, the provisions of this Article shall apply only to the last-mentioned amount. In such case, the excess part of the fees shall remain taxable according to the laws of each Contracting State, due regard being had to the other provisions of this Convention.

Annex 2
Modelling methodology

This annex describes the modelling framework used to assess the economic and fiscal implications of adopting Article 12AA. The approach combines detailed fiscal accounting with structural trade and investment modelling to capture both the direct effects of changes in withholding taxation on cross-border services and the indirect, economy-wide spillovers operating through trade, investment, and aggregate activity. The methodology is designed to strike a balance between analytical rigour, transparency, and feasibility given current data constraints, particularly for developing economies.

The analysis proceeds in two main steps. First, changes in statutory and treaty-based WHT regimes by Article 12AA adoption scenario are calibrated into shock in bilateral tax parameters in a consistent manner to the literature. Second, the resulting trade and investment shocks are propagated through a general-equilibrium macroeconomic framework to capture broader effects on output, trade in goods, and fiscal revenues beyond withholding taxes.

A2.1 Calibrating trade and investments shocks

The first step of the analysis translates changes in statutory and treaty-based WHT rules implied by Article 12AA adoption into effective bilateral tax wedges on cross-border services. This requires a comprehensive and harmonised reconstruction of countries' international tax settings, combining domestic law, treaty provisions, and relief mechanisms into a consistent set of bilateral tax parameters.

As a starting point, the analysis draws on an extensive data collection effort covering statutory WHT rates on services, treaty-based caps, CIT rates, and methods of double tax relief across countries. Given the complexity of international tax rules, the objective is not to replicate every idiosyncratic feature of individual treaties, but to construct a comparative and economically meaningful representation of the tax burden faced by cross-border service providers.

These data are compiled from multiple sources, including treaty texts, tax guides, and international tax databases, with particular attention paid to coverage and consistency for developing economies. CIT rates are sourced from the Tax Foundation, while information on domestic WHT on services and foreign tax relief mechanisms is drawn from OECD, EY, and KPMG publications. Bilateral WHT rates and the structure of double taxation agreements are compiled from ICTD's Double Tax Treaties and OECD treaty-based WHT rates databases.

Table 1: Data sources

Data	Source
FDI	World Bank
Trade in services	WTO BaTis
Trade in non-fuel goods and services	US ITC's ITPD-E / ITPD-S
Corporate income tax (CIT)	Tax Foundation
Domestic WHT on technical services	OECD, EY, KPMG
Bilateral WHT and Double Tax Agreements	ICTD, OECD
FTA, distance, shared border, common language, and historical ties	CEPII

Source: Oxford Economics

Estimating impact of tax changes on trade and investment frictions

These tax parameters are then mapped onto changes in trade and investment frictions. Wherever possible, the magnitude of the resulting effects is informed by the existing empirical literature. In particular, the analysis draws on elasticity estimates from panel econometric studies that relate changes in tax wedges to cross-border flows of services, FDI, and goods trade.

In particular, we draw from estimates in Liu et al. (2025) and Hearson et al. (2021) to calibrate the responsiveness of trade and investment to changes in effective bilateral WHT. These studies both draw from panel econometric methods with a stringent set of controls typically used in the literature to ensure high quality estimates. This ensures that the simulated impacts are anchored in observed historical relationships rather than ad hoc assumptions. Estimated shock to bilateral trade in services are then combined with current share of services in bilateral non-fuel goods and services trade to adjust for the specific importance of service for each country pair.

This top-down approach allows us to estimate the combined de jure and de facto impacts of policy changes, rather than isolating statutory effects alone. In doing so, it implicitly captures administrative costs, compliance frictions, and policy uncertainty that shape how tax rules operate in practice and influence economic behaviour. In the current framework, the country fixed effects also control for tax-related variables such as prevailing CIT rate, other domestic taxation and administrative capability of the country, and overall investment climate.

We also note that Hearson et al. (2021) reports different elasticities of WHT rates obtained using different econometric specifications. We adopt the more conservative measure reported in column (8) of Hearson et al. (2021). In Annex 3.3, we present the modelling result based on the higher semi-elasticities (suggesting more detrimental impact of WHT on investment) reported in column (9) of Hearson et al. (2021).

Table 2: Semi-elasticity used for calculation of shocks to trade and investment frictions

Impact of bilateral WHT on	Semi-elasticity	Source
Bilateral trade in cross-border services	-1.5	Liu et al. (2025)
Bilateral trade in services	-0.7	Liu et al. (2025)
Bilateral FDI flows	-0.129	Hearson et al. (2021)

Note: The semi-elasticity reported by Hearson et al. (2021) is for a unweighted average of different WHTs rates for four types of payments (for dividends, interest, royalties and technical service fees). We thus need to adapt the semi-elasticity to reflect the responsiveness from changes in WHT on technical service fees only.

Armed with the estimated changes in tax parameters and their trade and investment (semi-) elasticities, we calibrate A12A scenario for each country pair for three types of cross-border frictions, (i) trade in cross-border services (ii) trade in non-fuel goods and services, and (iii) FDI.

A2.2 Modelling economic responses

To assess the economic impact of these shocks, the analysis applies two complementary structural gravity models, each designed to capture different dimensions of adjustment.

Cross-border service trade model

The first model incorporates the shocks to cross-border services to evaluate the impact of A12A scenario on these flows. Output from this model is further used to calculate the direct impact on revenue from cross-border services exports and imports.

This model assesses bilateral services trade data for **up to 143 countries** (including both Global North and Global South countries), allowing for a broad and granular assessment of trade responses across developing and advanced economies alike. Its global coverage makes it particularly well suited to capture trade destruction, trade diversion, and substitution between domestic and cross-border service provision in the Global South.

The modelling is implemented in two steps. In the first step, structural gravity relationships are estimated using the framework proposed by Zylkin et al. (2018) and data from the United States International Trade Commission's International Trade and Production Database for Simulation (ITPD-S). This dataset includes both domestic and international transactions and allows us to recover country-specific patterns of intra-national trade and bilateral growth rates in services trade. Together, this approach captures trade destruction through reductions in total services imports, trade diversion via reallocation across trading partners, and import substitution as demand shifts between foreign and domestic service provision in response to changes in relative prices.

In the second step, these estimated profiles are mapped onto the latest bilateral services trade data from the WTO's Balanced Trade in Services (BaTiS) database, enabling the calculation of policy impacts in nominal U.S. dollar terms for each country pair. Economy-wide income effects arising from the broader macroeconomic model are also fed back into the services gravity framework to capture knock-on demand effects.

Macroeconomic model

The second model captures economy-wide macroeconomic effects arising from changes in both trade and investment frictions. This framework builds on Larch and Yotov (2025) that jointly captures the macroeconomic impact of trade and investment frictions in a structural gravity framework. For the purposes of this analysis, we adapt the model to explicitly incorporate services trade, in addition to trade in goods Owing to its more demanding data requirements, the macroeconomic model is estimated for a smaller sample of 88 countries, including 43 Global South economies, with balanced representation across regions and income groups (low-, lower-middle-, and upper-middle-income countries). This model allows trade and investment shocks to propagate through output, income, and expenditure linkages, generating general-equilibrium effects that extend beyond the services sectors directly affected.

In this structural gravity framework, GDP effects arise endogenously from general-equilibrium adjustments to trade and investment frictions. Policy shocks first affect bilateral trade costs and investment frictions, which alter relative prices, market access, and the profitability of supplying goods, services, and capital across borders. These changes reallocate expenditure across domestic and foreign suppliers and, crucially, influence investment decisions by multinational firms. Lower investment reduces capital accumulation and productivity spillovers, which in turn affect countries' productive capacity and real income. Aggregate GDP therefore adjusts as an equilibrium outcome reflecting changes in production, income, and expenditure consistency, rather than as a direct function of trade volumes.

To ensure consistency with current economic conditions, simulated percentage changes from the macroeconomic model are mapped onto 2023 baseline levels using data from the Oxford Economics Global Economic Model. This benchmarking allows the results to reflect the latest available GDP, trade, and investment profiles for each economy. The resulting economy-wide adjustments are then used to quantify indirect fiscal effects, capturing changes in tax bases – such as corporate income and consumption – arising from shifts in output, investment, and trade volumes. This integration ensures that fiscal impacts are assessed in a manner that is fully consistent with the macroeconomic adjustments implied by Article 12AA adoption.

Annex 3
Robustness

A3.1 Alternative tax assumptions for Article 12AA adoption scenario

Our assumption of Article 12AA WHT parameters draws on the observed distribution of treaty and domestic WHT rates applied to technical services, in particular those historically captured under technical services provisions (e.g., Article 12A-type approaches).

A potential consideration is that WHT rates derived from "technical services" provisions may not perfectly reflect the broader scope of services under Article 12AA. Technical services are typically characterized by a higher degree of skill and expertise compared to the broad definition of services included in the new article 12AA. If policymakers interpret Article 12AA as applying to a wider set of routine or lower-margin services, this could create pressure – during bilateral negotiations – to agree on lower gross-basis caps than those currently observed for narrower technical services categories.

Nonetheless, prevailing practice does not provide strong support for this concern. As documented in Box 1, statutory WHT rates formally designated for "technical services" are, in many jurisdictions, applied in practice to a broader range of cross-border services, including managerial, consultancy, and other professional services. Moreover, domestic tax practice also indicates that WHT rates on technical services can, in some cases, be lower than those applied to other categories of cross-border services, suggesting that a broader service scope does not mechanically imply lower withholding tax rates.

A related consideration is that, in current policy debates, some stakeholders may implicitly analogise Article 12AA to Digital Services Taxes (DSTs). This analogy may arise insofar as Article 12AA is perceived as an instrument to tax remote, market-facing services enabled by digital delivery and limited physical presence. It should be noted, however, that the taxation of automated digital services is already addressed separately under Article 12B of the UN Model Convention. Statutory DST rates adopted unilaterally are typically well below the domestic WHT rates observed for technical services,[31] which may give the impression that our assumed parameters are high when viewed through a DST lens.

However, statutory rates of DSTs do not constitute a close benchmark for Article 12AA. DSTs have been implemented unilaterally through a wide range of heterogeneous policy designs, typically outside the scope of income tax treaties. Existing DST regimes vary substantially across jurisdictions in terms of (i) the tax base (e.g. online advertising revenues, digital marketplaces, user data), (ii) the taxable nexus (often linked to user location rather than service performance or payer residence), (iii) legal characterisation (turnover taxes, excise-type levies, or standalone digital taxes), and (iv) their interaction with corporate income tax (see Table 3). With this diversity, many DSTs follow fundamentally different approach from Article 12AA. Accordingly, while statutory DST rates may provide a useful reference point in policy discussions, they are not directly comparable benchmarks for calibrating WHT parameters under Article 12AA.

31 For example, the African Tax Administration Forum (ATAF) recommends African governments to adopt a 1-3% DST on gross revenue from digital services https://ataftax.org/library/ataf-suggested-approach-to-drafting-digital-services-tax-legislation/

Table 3: Different legislative approaches to taxation of digital services

Type of regime	
DST	EU Proposal, France, Italy, Spain, Turkey, Austria, UK, Zimbabwe, Kenya, Uruguay, ATAF
Digital PE	Nigeria, Israel, Indonesia
Withholding Tax	Malaysia, Pakistan, Taiwan, Costa Rica, Uruguay (for audio-visual services), Thailand, Vietnam, Mexico, Paraguay
Other	OECD Pillar 1 Proposal
Interaction with Income Tax	
Part of Income Tax Regime	OECD Pillar 1 Proposal, Nigeria, Israel, Uruguay, Zimbabwe, Kenya, Malaysia, Pakistan, Taiwan, Costa Rica, Thailand, Vietnam, Mexico, Paraguay
Separate from Income Tax Regime	EU Proposal, France, Italy, Spain, Turkey, Austria, UK, ATAF

Source: World Bank (2021)[32]

Nonetheless, to ensure the robustness of our analysis, we introduce an additional robustness scenario based on lower WHT parameters. In this scenario, we assume that Global South countries adopt or increase domestic WHT on cross-border services to 10%, corresponding to the median rate observed among countries that have sought to tax digital services through withholding-type mechanisms (as summarised in Table 4). Consistent with this lower domestic rate, treaty WHT caps are reduced proportionately relative to the baseline assumptions, with caps set at 6% for South–South treaties and 2% for North–South treaties.

The results aggregated for the Global South are reported in the first row of Table 4. Qualitatively, the central message remains unchanged: the shock is associated with negative effects on core real-economy aggregates, including exports, imports, inward FDI, and GDP. Quantitatively, we estimate that exports fall by 0.29%, imports by 0.56%, and FDI by 0.19%, with GDP declining by 0.04% relative to the status quo baseline. These patterns are consistent with the notion that higher effective tax burdens and associated frictions on cross-border service provision dampen trade volumes and investment activity, with second-round effects on output.

On the fiscal side, Table 4 shows that the gross revenue gains from direct withholding taxation (around 3.8% in the direct WHT channel) are largely offset once general-equilibrium effects are taken into account. In particular, reductions in trade and investment erode other tax bases and depress macro-fiscal revenues, substantially diluting the headline direct WHT gains. As a result, the net fiscal impact for the Global South is modest: we estimate an increase in net government revenue of around 0.1%, equivalent to approximately about US$0.8 billion per year for the Global South economies in our panel. That considered, the impact will be heterogeneous depending on countries' trade structures, treaty networks, and domestic tax systems; consequently, the net fiscal revenue might still be negative for Global South economies, which are likely to be most affected.

32 ibid.

Table 4: Aggregated annual impacts for the Global South for alternative robustness tests

No.	Robustness tests	Export	Import	FDI	GDP	Net fiscal (% revenue)	Net fiscal (US$)
1.	Alternative tax assumptions	-0.29%	-0.56%	-0.19%	-0.04%	0.01%	0.8 bn
2.	Explicit incorporation of PE-related shocks	-0.97%	-3.04%	-3.59%	-0.18%	-0.09%	-6.9 bn
3.	Alternative semi-elasticity estimates of WHT rates	-0.49%	-0.78%	-0.78%	-0.11%	-0.03%	-2.6 bn

Source: Oxford Economics

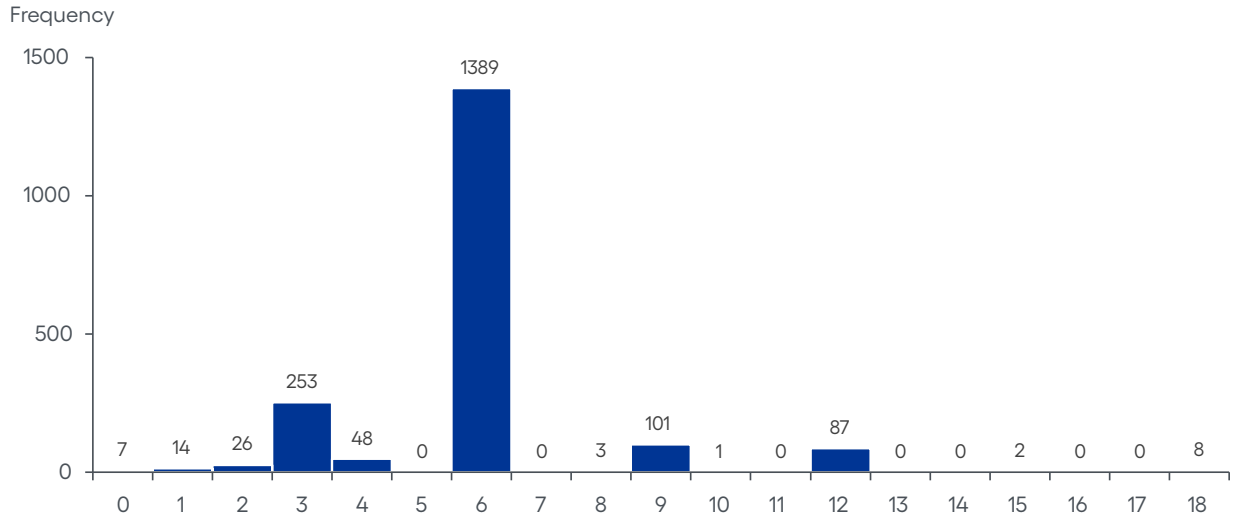
A3.2 Explicit incorporation of PE-related shocks

The economic impact of changes in PE rules is theoretically ambiguous and empirically underexplored (see section 3.1 for a discussion). Our literature review does not reveal any empirical research that specifically look at similar change in PE treatment. Furthermore, there is no historical precedent for an Article 12AA–type regime that permits source-based taxation of services in the complete absence of any physical presence or duration threshold. To date, even its predecessor, Article 12A, has seen extremely limited uptake and has not been implemented through treaties in force. As a result, there is no historical evidence that would allow the direct estimation of the economic effects of removing the PE requirement for services altogether.

Given the absence of real-world implementation and robust evidence, our main model specification thus does not incorporate PE-related effects into the main specification. This modelling choice is consistent with our overall conservative approach and aligns with the empirical findings of Hearson et al. (2021), who do not report a statistically significant association between PE clauses and FDI flows. As we exclude PE-related effects from the trade and investment shocks for modelling, the impact of Article 12AA adoption is thus derived by the changes in WHT rates across countries and changes in WHT caps across country pairs.

In this robustness test, we conduct an original econometric exercise to incorporate the potential magnitude and direction of PE-related effects. This exercise exploits the cross-country variation in services PE duration thresholds specified under Article 5(3)(b) of existing DTTs. Since 1980, the UN MTC has included a provision for a services PE. In 2008, the OECD introduced an optional, equivalent provision in the commentary to Article 5 of its MTC. This provision deems the furnishing of services to constitute a PE once activity in the source country exceeds a specified time threshold, most commonly six months within a twelve-month period – though treaty practice shows substantial variation around this benchmark (Figure 15).

Figure 15: Distribution of service PE thresholds across developing countries' DTT (in months)



Source: Oxford Economics/ICTD

The model employs state-of-the-art structural gravity techniques to quantify the impact of PE-related changes. Structural gravity has become the leading empirical framework used by the UN, the World Bank, and other international organisations to evaluate the impacts of public policies on international trade and investment. We estimate effects using a structural gravity specification implemented with Poisson Pseudo-Maximum Likelihood (PPML), controlling for statutory tax rates and standard bilateral determinants, including distance, contiguity, common language, colonial ties, and the presence of free trade agreements.[33]

Empirically, we quantify two distinct channels. First, we capture the overall stringency of PE rules using the ICTD PE index (ICTD, 2021). Second, we test whether exceptionally short services PE thresholds are associated with differential effects on bilateral trade and investment. In principle, a zero-month threshold[34] would most closely approximate the removal of a duration requirement implicit in Article 12AA. However, the number of such cases is too small to support credible estimation. We therefore implement a feasible contrast by comparing treaties with services PE thresholds of three months or less against treaties with longer thresholds.

Our estimation results indicate that both PE-related channels are associated with statistically significant reductions in cross-border activity. In particular, the presence of services PE provisions – relative to reliance on a "fixed place" PE approach – is estimated to reduce bilateral trade (including services trade) and FDI. We also find that exceptionally short duration thresholds are associated with statistically significant reductions in services trade, although we do not detect a statistically significant effect on FDI. These estimates should be interpreted as capturing the impact of unusually restrictive services PE thresholds, rather than the effects of eliminating PE requirements altogether.

We then use these estimated PE-related effects to recalibrate the trade and investment shocks in the simulation framework and re-run the modelling following the same sequence of steps described in Section 4. Results are reported in the second row of Table 4.

33 A drawback of our exercise is that we could only construct a cross-section of global data for the year 2019, due to not having access to timeseries data of domestic WHTs on technical services across countries. We view the economic consequences of PE erosion under Article 12AA as an important area for future research as real-world implementation and data become available.

34 Examples include Algeria-Libya, Algeria-Libya-Tunisia, and Azerbaijan–Moldova DTTs.

Incorporating PE-related channels materially amplifies the estimated macroeconomic adjustment relative to the status quo baseline. In particular, the implied impact on FDI is pronounced: annual FDI inflows to Global South economies in our panel are estimated to decline by 3.59% relative to the baseline. Trade effects are also negative, with imports falling by 3.04% and exports by 0.97%. Consistent with these external adjustments, GDP is estimated to decline by 0.18%.

Fiscal effects are likewise negative. Net government revenue is estimated to fall by 0.09%, equivalent to a US$6.9 billion reduction in government revenues for the Global South economies covered in our sample. Taken together, these results reinforce the conservative nature of our core approach: by excluding PE-related channels in the main specification, the baseline simulations are less likely to overstate adverse economic impacts and therefore provide a cautious benchmark for interpreting the implications of Article 12AA adoption.

A3.3 Alternative semi-elasticity estimates for FDI friction shocks

Our main specification simulations adopt the more conservative semi-elasticities of WHT rates reported by Hearson et al. (2021), corresponding to column (8) of their preferred specification. As noted by the authors, estimated elasticities vary across econometric specifications, reflecting differences in identification strategy and sample composition. To assess the sensitivity of our results to this choice, we conduct a robustness exercise using the higher semi-elasticities reported in column (9), which imply a stronger negative response of investment to WHT increases.

Applying these higher elasticities uniformly amplifies the magnitude of the simulated impacts. Under this alternative calibration, declines in FDI are larger, spillovers to trade and output are more pronounced, and the resulting GDP and net fiscal impacts are more negative across all country groups. Importantly, this exercise does not alter the qualitative conclusions of the analysis; rather, it confirms that our baseline results are conservative and that the headline estimates should be interpreted as lower-bound effects of Article 12AA adoption.

Annex 4
Abbreviations

Abbreviation	Description
A12A	Article 12AA adoption scenario
ATAF	African Tax Administration Forum
BaTiS	World Trade Organization's Balanced Trade in Services
Bn	Billion
CIT	Corporate Income Tax
DTT	Double Tax Treaty
EY	Ernst & Young
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICC	International Chamber of Commerce
ICTD	International Centre for Tax and Development
IMF	International Monetary Fund
MNEs	Multinational enterprises
MTC	Model Tax Convention
OECD	Organisation for Economic Co-operation and Development
Ppt	Percentage point
PE	Permanent Establishment
PwC	PricewaterhouseCoopers
UN	United Nations
WHT	Withholding Tax
WTO	World Trade Organization

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