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Taxing Cross-Border Services

Shafik Hebous, Brendan Crowley, Rasmi Das, Tibor Hanappi, Cory Hillier, Adam Jakubik, Eric Robert, and Christophe Waerzeggers

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ABSTRACT: Faced with the limitations of existing tax frameworks for cross-border trade in services—particularly the lack of taxing rights over certain income from highly digital business models and the continuing scope for profit shifting through payments for cross-border services—countries and scholars have adopted or proposed a wide range of tax measures. This paper brings these measures together in a coherent framework and examines them from both an economic and a legal perspective. It documents how cross-border services trade has grown, become more digital in composition, and become increasingly concentrated across sectors, firms, and jurisdictions. It then develops a comparative synthesis covering destination-based consumption taxes such as VAT, gross-revenue taxes—notably digital services taxes—as well as income-based instruments such as nexus and withholding rules, and anti-avoidance rules aimed at limiting profit shifting through deductible cross-border payments. The paper argues that the economic incidence of each instrument is central to policy assessment and that evaluating these instruments in isolation obscures their interaction. Its main conclusion is that broader reliance on destination-based taxation can address many of the core problems raised by digitalized services trade more effectively than narrower, more distortionary alternatives.

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Executive Summary

Cross-border trade in services has grown rapidly, with digitally delivered services accounting for an increasing share of that growth. These services can be supplied remotely, at scale, and without any physical footprint in the market country where they are used. This can make it harder for traditional tax rules, which often rely on physical presence, to tax profits linked to such services in the market country. Value creation is also increasingly linked to user data and market engagement, not only to the service itself. Even where physical presence exists in the market country, related-party cross-border services can be difficult to price at arm's length because reliable comparables are often limited, creating risks of profit shifting.

As a result, countries increasingly face two connected challenges: how to tax profits from remote services supplied into their markets, and how to protect their tax base from deductible outbound payments for services.

In the absence of a comprehensive global agreement, countries have adopted or considered a range of unilateral tax instruments. The central organizing question of this paper is simple: what exactly is each instrument trying to achieve?

- **Taxing final consumption:** Destination-based VAT is the most coherent and least distortionary instrument among those examined. Modern VAT systems can bring imported digital services into the tax net through place-of-supply rules, simplified non-resident registration, reverse-charge mechanisms for business purchasers, and platform-based collection. The policy and legal task is effective implementation.

- **Taxing income from remote market participation:** The main unilateral instruments each raise distinct challenges.

    - *Digital services taxes* (DSTs) attempt to source revenue to the market using user or customer location. However, they tax gross revenues rather than profits and are therefore inherently distortionary. DSTs are selective—raising challenges of ring-fencing—and their incidence is uncertain. Evidence in this paper shows that DST adoption is associated with reduced digital-services imports, consistent with pass-through to consumers or business users rather than effective taxation of the foreign provider's profits. DSTs are legally designed to sit outside the traditional scope of tax treaties, amplifying risks of double taxation.

    - *Withholding taxes and broad source rules* can apply to outbound payments for a broader set of services than DSTs and work best when there is a resident payer or identifiable intermediary in the source jurisdiction. They are less effective when the market connection is the location of users rather than the residence of the payer. Withholding taxes can also be distortionary, and more research is needed to understand their incidence and real economic effects. In addition, withholding taxes are often restricted or even eliminated by tax treaties.

    - *Expanded nexus rules*, such as digital permanent establishment and significant economic presence rules, seek to bring remote market participation within the ordinary net-income tax system. But deeming nexus to exist does not resolve how much profit should be attributed to

the market jurisdiction. With no local personnel, assets, or risks, traditional profit-attribution rules may allocate little or no profit to the deemed presence. Treaty provisions such as UN Article 12B offer a different route for automated digital services: rather than deeming a taxable presence, they create a source-country taxing right without requiring a PE.

- **Curbing profit shifting through limits on otherwise deductible cross-border payments:** Transfer pricing rules, deduction limitation rules, diverted profits taxes, targeted deemed PE rules, and treaty-based provisions such as UN Articles 12A, 12AA, and the amended royalties article primarily address outbound payments and related-party arrangements, often functioning economically like withholding taxes. Anti-avoidance rules work best when the market connection is the residence of a business payer, but even then they remain imperfect tools for addressing structural limits in the existing international tax framework.

A core insight of the paper is that these instruments cannot be evaluated in isolation. Their legal scope, economic incidence, and behavioral effects overlap in ways that can either reinforce or undermine policy objectives.

The main conclusion is that broader reliance on destination-based taxation would address the concerns raised by digital services trade more effectively than the narrower and more distortionary unilateral measures that have proliferated in its absence. In a world where services can be supplied globally without physical presence, tax systems will most likely continue shifting toward granting greater taxing rights to market jurisdictions rather than to the places where firms happen to be located. If a multilateral solution is not agreed, the likely outcome is a multi-player landscape marked by overlapping and inconsistent instruments, increasing both administrative complexity and the risk of double taxation.

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1. Introduction

Cross-border services have become one of the most important—and most difficult—frontiers in international taxation. The rules that allocate taxing rights across jurisdictions were largely designed for a very different world economy: one in which trade was dominated by goods, cross-border transactions were more limited, and foreign direct investment (FDI) often placed production close to final markets. That world has changed profoundly.

Over the past two decades, trade in services has expanded rapidly and now accounts for roughly one-fifth to one-quarter of global trade, with digitally delivered services growing especially quickly. The organization of multinational production has also changed. The multinational enterprise (MNE) has evolved from a collection of national affiliates, each largely serving its local market, into a more integrated *global* firm in which entities within a complex ownership structure perform specialized functions for the group as a whole (Hebous, 2021). Intangible assets—and the related cross-border payments they generate, including related-party royalties and service fees—have become increasingly central to value creation and profit allocation across jurisdictions. In 2024, services accounted for 27.2 percent of world trade, their highest share since 2005.

The international tax framework has not adjusted—certainly not at the same pace. Since 1928, the treaty-based system setting international tax norms has rested on the premise that the business profits of a non-resident enterprise are taxable in a jurisdiction only if the enterprise has a sufficient physical presence there, typically in the form of a permanent establishment (PE). The same framework generally allocates broader source-country taxing rights over passive income than over active business profits, although treaties also limit the use of withholding taxes on outbound payments. This has increased the attraction of using those remaining source-based tools to reach business income that would otherwise fall outside the ordinary treaty-based PE framework. These rules were developed when physical presence was a plausible proxy for meaningful participation in a market, or in a jurisdiction more generally, and where clearer distinctions could be drawn between business profits and passive income. That is no longer always the case.

Firms can now supply advertising, cloud computing, consulting, streaming, software, intermediation, and many other services into a jurisdiction at scale without establishing a local business presence.[1] This has intensified one strand of the debate on cross-border services taxation: growing reluctance by countries to limit or entirely forgo taxing rights over income linked to their domestic markets, users, consumers, and data.

At the same time, even where a local presence exists, cross-border services and intangibles are often difficult to price because reliable comparable market prices are lacking, creating scope for profits to be shifted out of market jurisdictions through deductible payments.[2] This reflects a second, more

[1] 'Local business presence' is used broadly here to refer to a non-resident firm's presence in a jurisdiction through either a PE or a locally incorporated subsidiary.

[2] For empirical evidence on profit shifting through related-party service trade, see Hebous and Johannesen (2021) and Garcia (2024). There is also evidence that patent location responds to tax planning opportunities, which in turn influences cross-border royalty flows (Accoto et al., 2024; Alstadsæter et al., 2018; Lejour and van 't Riet, 2025).

longstanding concern: the erosion of the domestic tax base through related-party cross-border service payments that are difficult to value and easy to shift across jurisdictions.[3]

These two concerns—the inability to tax income without a local business presence, and the use of cross-border services to shift profits across jurisdictions—have, in turn, generated a proliferation of tax instruments. Some are intended primarily to establish taxing rights over cross-border services supplied into a market without a sufficient local presence; others seek mainly to curb base erosion through deductible payments for services, intangibles, and related intragroup service charges. Yet the distinction is not always clear-cut. In some cases, different instruments reach related or even identical flows—whether intentionally or unintentionally—while differing in their legal design and in the economic incidence of the tax burden.

This paper examines the principal tax measures and legal approaches used or proposed for taxing cross-border services, focusing on their scope, legal design, economic properties, and broader implications, while abstracting from more fundamental reforms that could in principle address these tensions more comprehensively.[4] It begins by documenting a set of empirical regularities on cross-border services, with particular attention to the magnitudes involved and, where possible, to tax-relevant distinctions across business-to-business (B2B) and business-to-consumer (B2C) services, modes of supply, and major international patterns in digital services (Section 2).

Section 3 examines VAT on cross-border services, which has become a key component of VAT modernization. Section 4 turns to digital services taxes (DSTs)—selective taxes on gross revenue from certain digital services—which gained prominence amid frustration with the limited progress of multilateral reform. In particular, Pillar One of the OECD/G20 Inclusive Framework was intended to reallocate a share of the residual profits of the largest multinational enterprises to market jurisdictions and, as part of that package, to secure the removal of existing DSTs and a standstill on new ones. But Pillar One has stalled, while the underlying tax issues remain unresolved.[5]

Section 5 examines source-based income tax rules, nexus and substance requirements, and anti-avoidance measures affecting cross-border services. Section 6 discusses treaty-based proposals, including provisions developed under the United Nations Model Convention—notably Article 12A on fees for technical services, Article 12B on income from automated digital services, and Article 12AA on cross-border service fees more generally, as well as the amended royalties article. Section 7 brings the main instruments together in comparative perspective. Section 8 concludes.

[3] The paper focuses only on profit shifting through cross-border services. BEPS concerns extend well beyond the mispricing of such services, and the broader reform agenda is multifaceted, including the OECD/G20 base erosion and profit shifting (BEPS) package agreed in 2015 and the 2021 agreement on a global minimum tax (Pillar Two). These wider issues are outside the scope of this paper. For discussion, see, for example, IMF (2019, 2023).

[4] For discussion of more fundamental reforms to corporate taxation, including destination-based overhauls of the tax system, see Devereux et al. (2021) and Klemm, de Mooij, and Hebous (2026).

[5] This reallocation of taxing rights to market jurisdictions is referred to as *Amount A* of Pillar One. It is intended to be implemented through a multilateral convention, which would need to be signed and ratified by a critical mass of jurisdictions before entering into effect; at present, that prospect remains highly uncertain. Its scope is also narrow covering fewer than 100 multinational groups and less than 2 percent of global profits (IMF, 2022).

2. What Are Cross-Border Services and Why Do They Matter for Tax?

Cross-border trade in services encompasses a broad range of transactions in which services are supplied across jurisdictions. Such trade differs from goods trade in several important respects: it is often less visible at the border—or indeed less subject to border control—, can be delivered through multiple modes of supply, and includes activities as varied as tourism, transport, finance, consulting, intellectual property-related transactions, and digitally delivered services such as software, cloud computing, online advertising, and online intermediation.

Digital services are best understood not as a wholly separate category, but as various services supplied remotely through electronic networks, often at scale and without requiring the supplier or any person related to it to have a local presence in the market jurisdiction. As such, they may overlap with other service categories mentioned above: for example, management, consulting, and technical support services may be digitally delivered, whereas payments for the use of intellectual property, such as royalties for trademarks or other rights, are more appropriately treated as IP-related payments even where they arise within a digital business model.

Cross-border service transactions are recorded in the balance of payments as service exports and imports. Some of these services are purchased by final consumers, while others are acquired by firms as intermediate inputs to production, or arise as related-party payments within multinational enterprise groups. The discussion that follows highlights a set of empirical regularities that help characterize the scale, composition, and tax-relevant dimensions of cross-border services trade.

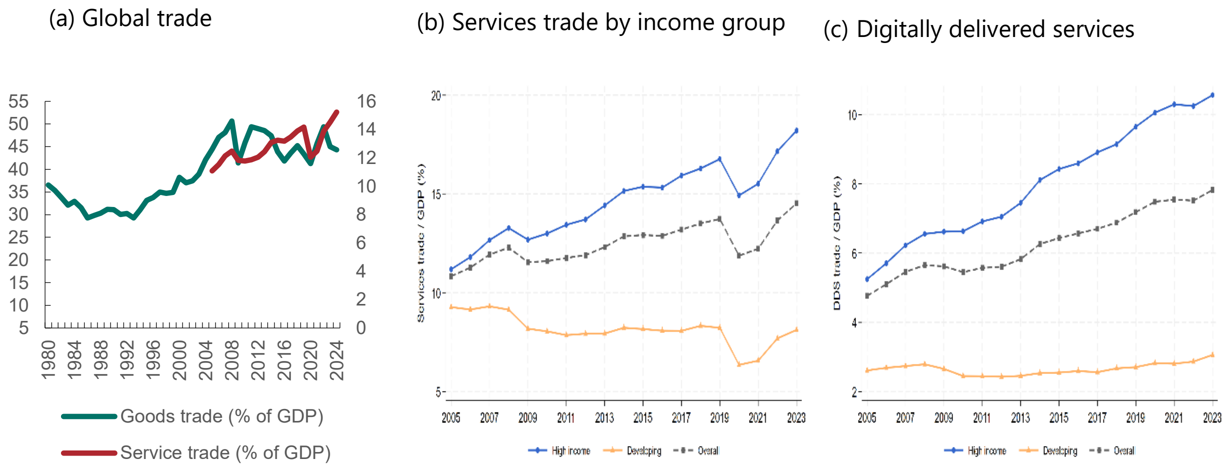
2.1 Empirical Regularities

Observation 1: Cross-border services trade has expanded steadily, with the strongest growth in high-income economies. Over the past two decades, cross-border services trade has increased substantially, reaching 16 percent of world GDP in 2024 (Figure 1, panel A). In high-income economies, the ratio of total services trade to GDP rose from about 11 percent in 2005 to nearly 18 percent in 2023 (Figure 1, panel B). By contrast, middle-income economies experienced much less expansion.[6] While digital services as a category are not directly observed in the data, digitally deliverable services provide a useful proxy.[7] In high-income economies, this category rose from roughly 5 percent to nearly 11 percent of GDP (Figure 1, panel C).

[6] Because the series are GDP-weighted, the upper-middle-income aggregate is heavily influenced by China, whose share of group GDP rises from about 39 percent in 2005 to 67 percent in 2019; excluding China, the group's services-to-GDP ratio would be about 11 percent in 2023, rather than the reported 7 percent. The low-income aggregate is based on 10–13 economies with non-missing data in a given year (out of 15–16 in the sample). Its year-to-year volatility is disproportionately affected by Mozambique, whose recorded services trade exhibits large fluctuations related to natural-resource project flows.

[7] See WTO and others (2023), Chapter 4, Figure 4.5. These include, for example, financial services, information services, computer services, telecommunications services, and personal services.

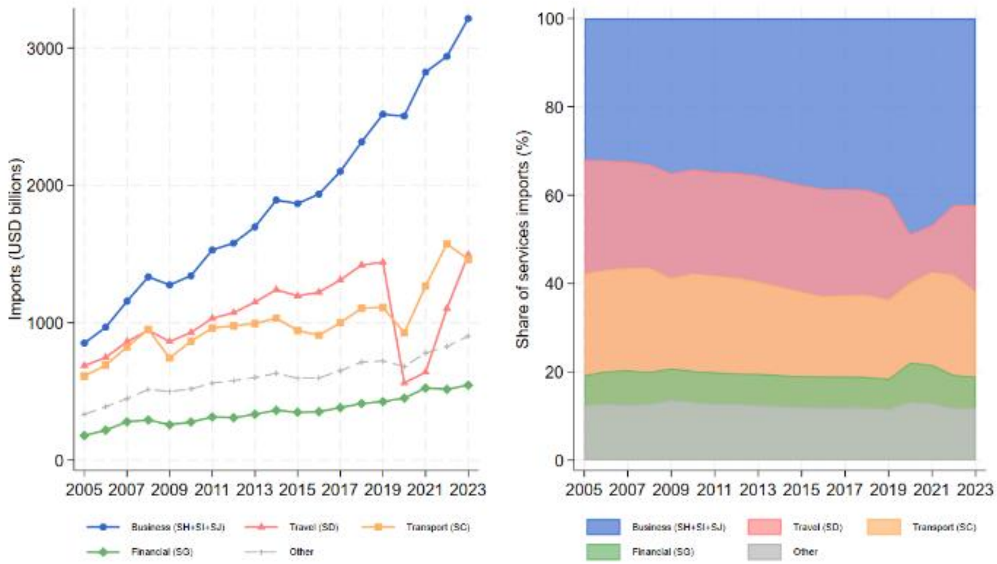
Figure 1. Trends of Cross-Border Trade in Services



Source: Panel A: WTO, IMF WEO, and authors' calculations. Panel B: World Bank World Development Indicators. Panel C: OECD–WTO Balanced Trade in Services (BaTIS). In Panel A, services trade data following the BPM6 definition begin in 2005 and exclude Mode 3 (foreign affiliate sales). In Panel B, services trade is computed as the sum of services exports and imports divided by nominal GDP, with all variables measured in current U.S. dollars. In Panel C, services are measured using OECD–WTO BaTIS, filtered for digitally deliverable services (WTO and others, 2023). SI values, reported in millions of U.S. dollars, are rescaled by 10^6 before division by WDI nominal GDP to align units. Income-group classification follows the World Bank 2023 Atlas method: high income, upper-middle income, lower-middle income, and low income. Series are GDP-weighted aggregates: numerators and denominators are summed separately within each income group before division, consistent with World Bank WDI methodology. The dip in 2020 reflects COVID-19 disruptions to travel and transport services, which dominate the all-services aggregate while digitally delivered services shown in Panel C were less affected.

Observation 2: The center of gravity within services trade has shifted toward business services, with the digital component becoming increasingly important. Business services—combining IP charges, computer services, and other business services—have been a key driver of the expansion of services trade. They accounted for roughly 32 percent of global services imports in 2005 and, by 2023, had reached about US$3.2 trillion, while travel and transport recovered only partially after the pandemic shock (Figure 2). Within business services, the more digitally intensive component—proxied here by computer services—has been the most dynamic: by 2023, computer services imports had risen by a factor of 5.4 relative to 2005, compared with roughly 3.8 for business services overall and 2.8 for IP charges and royalties (not shown).

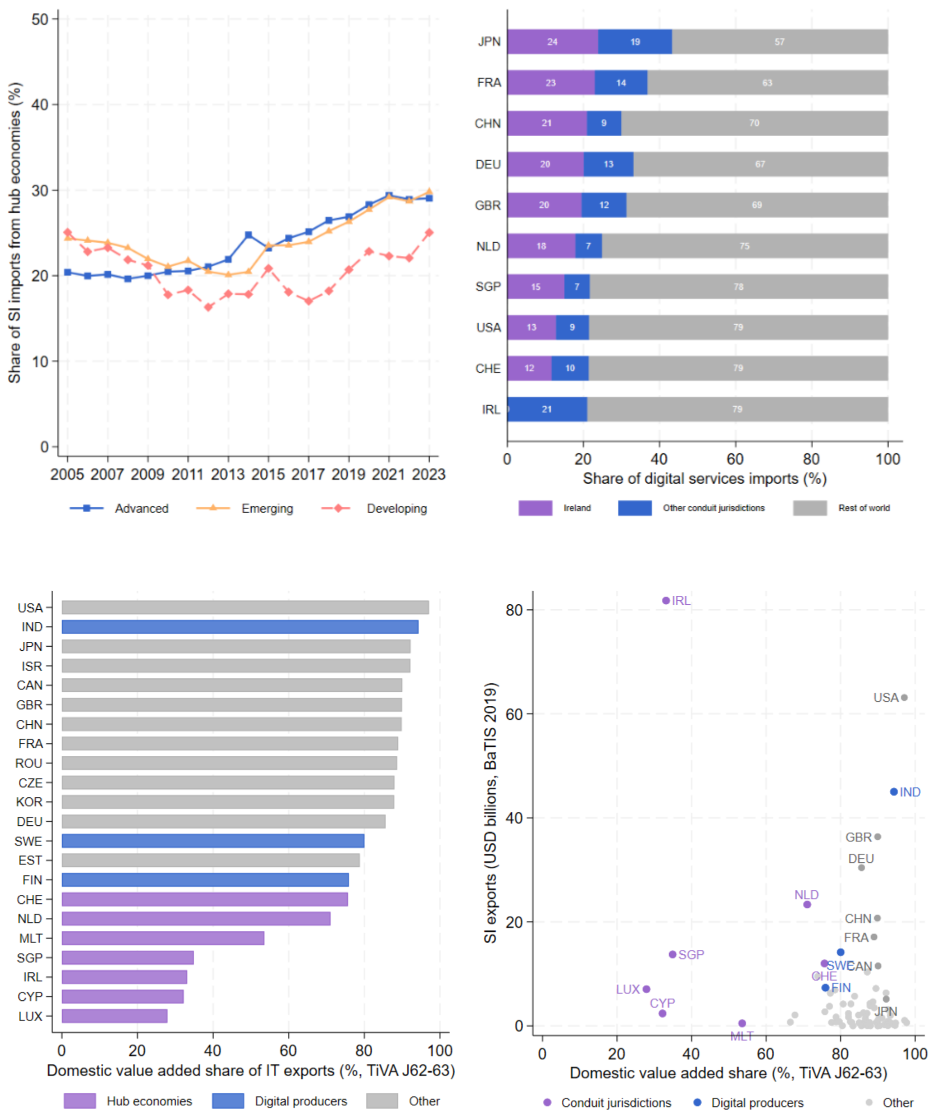
Figure 2. The Evolution of Cross-Border Trade in Business Services



Source: OECD-WTO Balanced Trade in Services (BaTIS), using the Extended Balance of Payments Services Classification (EBOPS) 2010 classification. Categories: Business services (SH + SI + SJ); Travel (SD); Transport (SC); Financial services (SG); Other (residual of total services minus the above). Aggregated across all reporting economies for which at least one bilateral flow is recorded in a given year; values in USD billions. Left panel shows import levels; right panel shows each category's share of total services imports (summing to 100% in each year). The sharp contraction in travel (SD) and transport (SC) in 2019–2020 reflects COVID-19 border restrictions. Business services, which are less dependent on physical mobility, maintained their upward trajectory throughout.

Observation 3: A significant share of digital services trade is recorded through conduit jurisdictions. A disproportionate share of digital services imports is sourced from a small group of jurisdictions (Figure 3). Across advanced, emerging, and developing economies, between 21 and 31 percent of digital services imports are recorded through these seven jurisdictions, with the share rising from about 21 percent to nearly 29 percent between 2005 and 2023. On the export side, these same jurisdictions also appear far more digitally intensive than the rest of the world: by 2023, digital services accounted for roughly 18–19 percent of their services exports, compared with about 9 percent elsewhere. Trade-in-value-added statistics also suggest that some of the jurisdictions recording the largest digital services exports retain relatively small domestic value added. For example, domestic value-added shares in IT-sector exports are 24–38 percent in some of these jurisdictions compared with 85 percent or more elsewhere. Overall, this pattern is consistent with the broader evidence that international trade in services is concentrated in a small number of jurisdictions (Hebous and Johannesen, 2021).

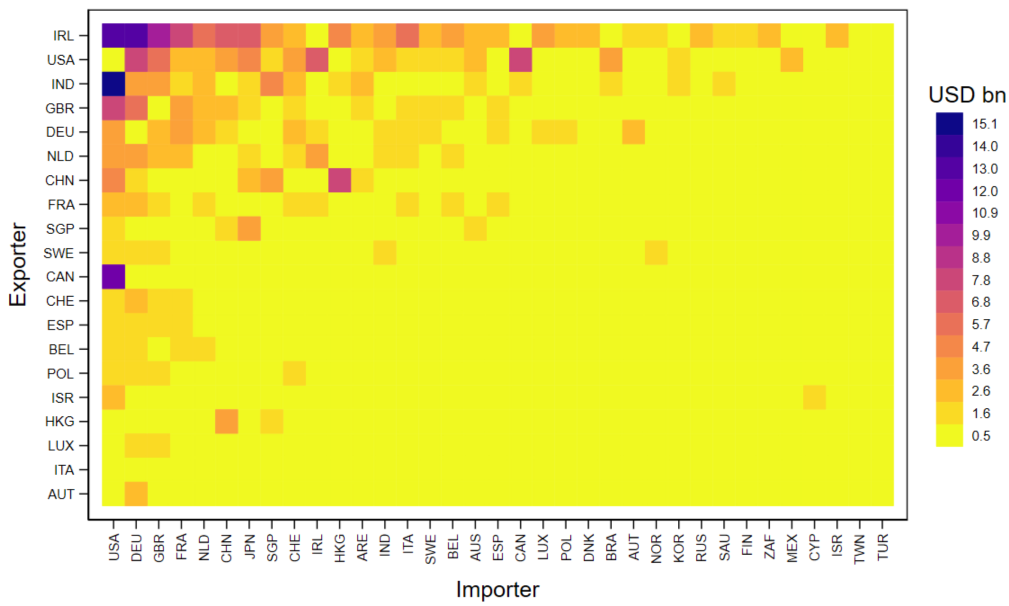
Figure 3. Domestic Value Added and Import Routing in IT and Computer Services



Source: OECD–WTO BaTIS bilateral data, EBOPS SI (computer services), and OECD Trade in Value Added (TiVA), EXGR_DVASH for ISIC Rev. 4 sectors J62–63. The seven jurisdictions with the lowest domestic value-added share in IT-sector gross exports are identified on a data-driven basis and treated as a separate group. The upper panels show the share and composition of SI imports sourced from this group, with Ireland shown separately. The lower panels report domestic value-added shares in IT-sector exports and relate them to SI export volumes. Low domestic value-added shares indicate that much of the recorded export value is created elsewhere and routed through the exporting economy. Missing bilateral flows are treated as zero.

Observation 4: The geography of global digital services trade is narrow and highly concentrated across a small number of country pairs. Digital services trade flows are dominated by a few large bilateral corridors, such as Ireland–United States, Ireland–Germany, Canada–United States, and the Chinese mainland–Hong Kong SAR, while most other bilateral links remain relatively small (Figure 4). Even so, a small share of global flows can be important for some countries. Services trade is also highly concentrated at the firm level: the literature shows that a relatively small number of firms account for a disproportionately large share of total services trade (Breinlich and Criscuolo, 2011). The pattern is also consistent with broader evidence that digital-platform markets are shaped by economies of scale and network effects, which tend to concentrate activity in a small number of firms and jurisdictions (IMF and others, 2023; McMahon et al., 2021). This geography of services trade may in part reflect tax considerations (Hebous and Johannesen, 2021).

Figure 4. Bilateral Digital Services Flows



Source: OECD–WTO BaTIS bilateral, EBOPS SI (computer services), 2023. The heatmap displays pairwise SI trade flows in USD billions for the 20 largest SI exporters (y-axis) and 35 largest SI importers (x-axis), ranked by 2023 totals. The color scale is perceptually uniform (viridis); yellow denotes flows below approximately USD 0.5 billion, dark blue-purple denotes flows approaching or exceeding USD 15 billion. The scale is truncated at USD 15.1 billion for display purposes; a small number of cells (notably IRL–USA, IND–USA, and CAN–USA) reach or exceed this threshold. Diagonal cells (same-country flows) are suppressed by construction, as BaTIS reports cross-border transactions only. Sparse coloring in the lower-right quadrant reflects near-zero bilateral flows between smaller or more distant economy pairs. Missing bilateral observations in BaTIS are treated as zero; this is standard practice but may understate flows for economy pairs where one partner does not report.

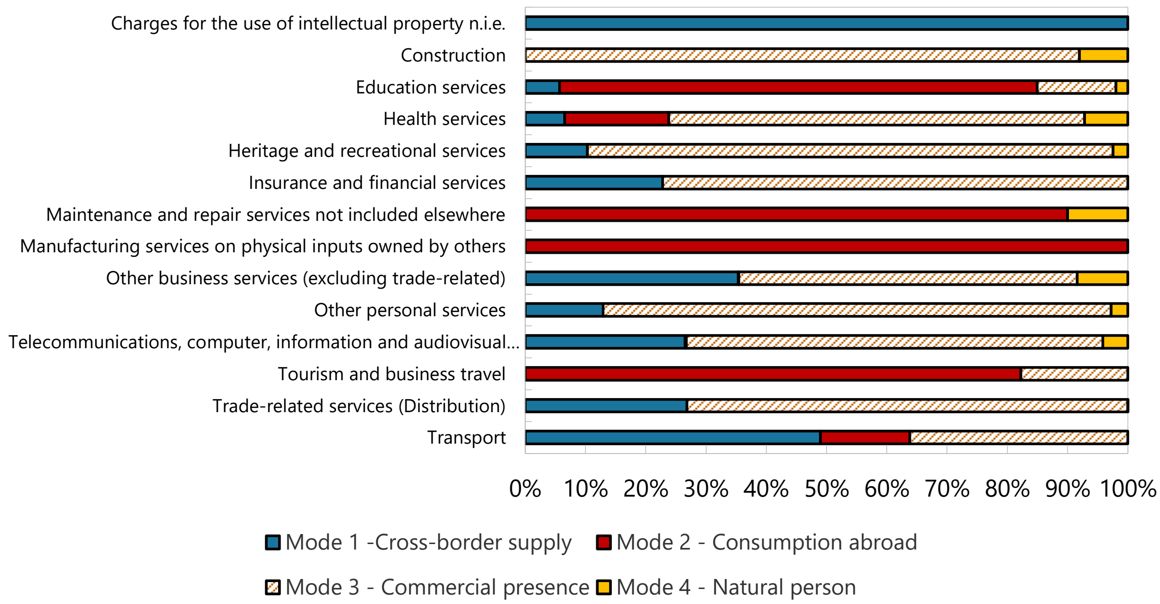
Observation 5: Some of the distinctions most relevant to tax policy are not directly observed in international services trade statistics. Standard services trade classifications (such as the Extended Balance of Payments Services Classification, EBOPS) do not distinguish between business-to-business (B2B) and business-to-consumer (B2C) transactions, nor between related-party and unrelated-party flows. Yet both distinctions are central to tax analysis. The B2B–B2C split matters for the analysis of instruments such as VAT, while the related-party split matters in particular because transactions within the multinational group may be vulnerable to transfer mispricing and hence profit shifting between jurisdictions. The available data are therefore informative about the scale and direction of trade, but much less so about the precise tax base at stake. Still, crude approximations can be useful in sharpening the policy discussion, albeit offering only a partial view of these dimensions.

Observation 6: Related-party services trade is quantitatively important, especially in digitally deliverable services. For example, the Bureau of Economic Analysis (BEA) affiliation data for the United States indicate that related-party trade is substantial in cross-border services and especially important in digitally deliverable services: in 2023, affiliated trade accounted for 37 percent of U.S. services exports and 27 percent of U.S. services imports, compared with 54 percent of digitally deliverable services exports and 49 percent of digitally deliverable services imports. Comparable European evidence points in the same direction. Using firm-level survey data for Italy, Accoto et al. (2024) show that about one-third of imports of intellectual property products and headquarters services are sourced from the country where the importing firm's parent company is located—a lower-bound proxy for intra-group trade—whereas for other services the corresponding share is below 10 percent. Related evidence from Sweden also suggests that services trade growth is closely tied to large multinational groups: Camacho and Fard (2025) report that the ten largest companies accounted for 30 percent of Sweden's total services trade in 2023 and link the expansion of services trade to significant intra-group transactions within globally structured multinational firms.

Observation 7: Modes of supply differ systematically across service sectors, with the fastest-growing sectors also being the least dependent on physical presence. Service sectors differ starkly in how they are traded (Figure 5).[8] Travel, tourism, and education-related services remain more closely tied to the physical mobility of consumers, while manufacturing and repair services are more closely tied to the physical movement of materials. In contrast, computer, professional, and other business services are much more amenable to remote cross-border delivery and, in many cases, digital delivery. Recent developments, including the post-pandemic recovery, have reinforced this asymmetry: sectors dependent on the movement of people recovered only gradually, while digitally deliverable services continued to grow. From a tax perspective, this shift is central. It is precisely the sectors least dependent on local physical presence that have expanded most rapidly, weakening the relevance of traditional 'nexus' concepts and increasing pressure for alternative tax instruments.

[8] The four modes of supply originate in trade negotiations, where different means of supplying a service may face different restrictions. They are embedded in the WTO General Agreement on Trade in Services (GATS) and in regional and bilateral trade agreements, where commitments are defined separately by mode. The statistics shown in Figure 5 include commercial presence (Mode 3), usually measured through foreign affiliates statistics. By contrast, Mode 3 is excluded from the BPM6 definition of services trade; profits repatriated from such sales, or more broadly related investment income, are recorded as primary income. BPM6 refers to the Balance of Payments and International Investment Position Manual, Sixth Edition.

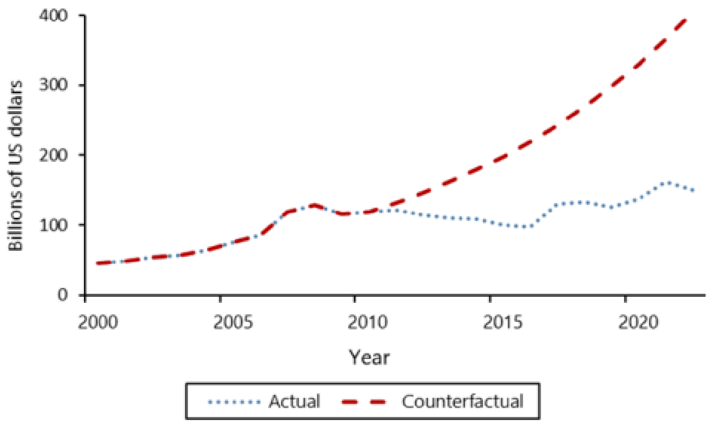
Figure 5. Services by Modes of Supply and Sector



Source: WTO Trade in Services by Modes of Supply (TISMOS). Note: Based on data for 200 reporting economies and 55 sectors for the period 2005–22. Mode 1 refers to cross-border supply, where the service itself crosses the border; Mode 2 refers to consumption abroad, where the consumer, or the good, goes abroad to consume or receive the service; Mode 3 refers to commercial presence, where the supplier provides the service through a foreign affiliate or branch; and Mode 4 refers to the presence of natural persons, where individuals move abroad temporarily to supply the service.

Observation 8: Digitalization is also changing the composition of cross-border trade by displacing some imports of physical goods with electronically delivered products. Upper-bound estimates of world imports of digitizable goods suggest a widening gap after 2010 between observed imports of physical goods with digital equivalents and a counterfactual path in which imports of these products continued to grow at earlier rates (Figure 6, based on Hanappi et al., 2024). This pattern is consistent with substitution away from goods crossing the border and toward electronic delivery of products such as books, music, software, and games. From a tax perspective, although the aggregate revenue impacts are small, this underscores the importance of bringing imported digital supplies and other electronically delivered products effectively within a broad-based consumption tax.

Figure 6. The Shift from Imports of Physical Goods to Electronically Delivered Products



Source: Hanappi et al. (2024). Note: Upper bound counterfactual estimates assume trade in digitizable goods would have grown at a constant rate of 10.8 percent after 2010. See Hanappi et al. (2024) for the methodology.

Overall, cross-border services trade is growing, becoming more digital, and increasingly concentrated across firms and jurisdictions, while quantitative analysis of the tax issues it raises depends increasingly on distinctions that standard trade data do not directly reveal.

2.2 Tax Implications of Cross-Border Services

Taken together, these observations point in two directions. First, the rise of remotely deliverable services increases pressure to establish taxing rights in market jurisdictions where services are consumed or users are located, even in the absence of any local presence of the provider. This pressure extends beyond consumption taxation to the taxation of income associated with domestic consumers and users. Second, the importance of related-party services reinforces longstanding concerns about potential base erosion through related-party payments for services and intangibles. The rise of cross-border services is therefore not only a story of expanding trade, but also one of intensifying tax pressures.[9] These pressures are likely to intensify as AI-related services become more important in cross-border trade, in both B2B and B2C contexts.[10]

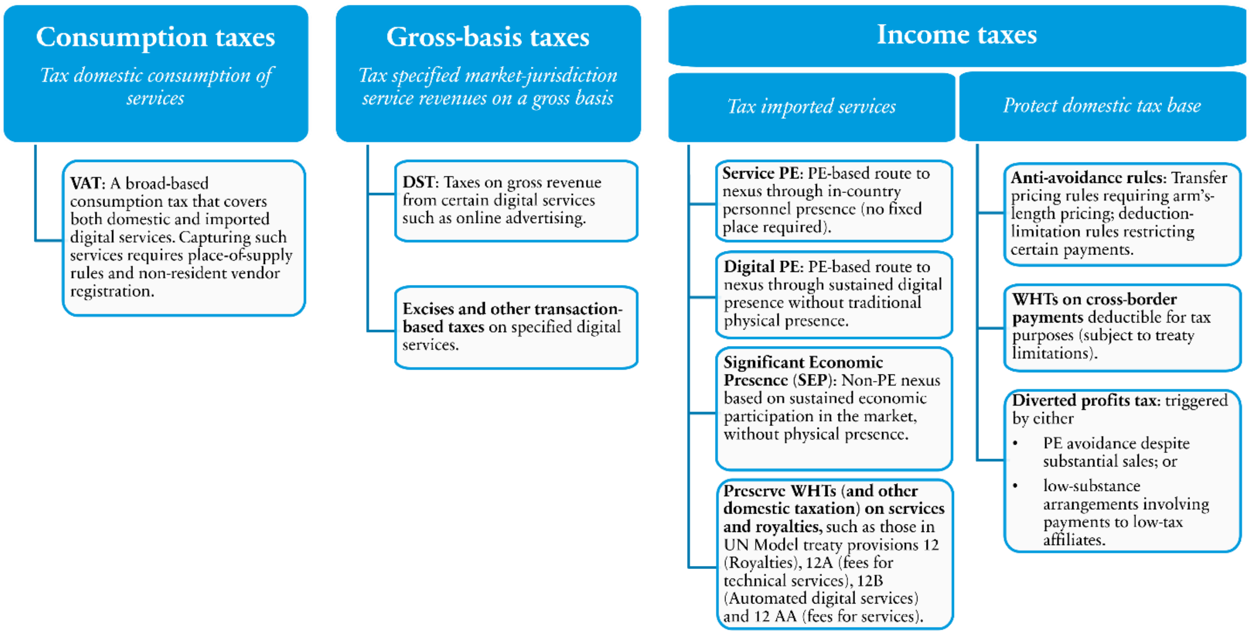
Before turning to the tax treatment of particular service transactions, it is useful to distinguish the main families of tax instruments that countries use in this area, grouped in Figure 7 by their main function. Some instruments are designed to tax domestic consumption, most notably VAT. Others seek to tax gross receipts earned by non-resident providers in the market jurisdiction, as in the case of DSTs and equalization levies. A further set of rules aims to bring non-resident firms within the

[9] These concerns long predate the current expansion of digital cross-border services; what has changed is the scale, salience, and intensity with which that expansion brings them to the fore. See, for example, IMF (2019, 2023).

[10] See Hebous and Klemm (2026) for a broader discussion of the tax challenges raised by AI-related activities. Related tax issues also arise in connection with digital money and the metaverse; see Agarwal and Hebous (2026).

domestic income-tax net by establishing sufficient nexus to tax profits, while anti-avoidance rules seek to protect the domestic tax base against deductible payments and other arrangements that shift profits abroad or circumvent nexus rules.

Figure 7. Main Tax Instruments for Cross-Border Services



Source: Authors.

To complement the functional grouping set out in Figure 7, Figure 8 maps the economic character of service transactions onto the principal tax issues they raise. At a broad level, cross-border consumer-facing services primarily raise consumption-tax concerns under the existing framework. The central question is how the market country should tax domestic consumption when the supplier is located abroad. This is the natural domain of VAT, although DSTs may also burden domestic consumption in a narrower and less neutral way—as discussed in more detail in the next section. As for customs duties, WTO members first agreed in 1998 to refrain from imposing customs duties on electronic transmissions (Box 1). That practice was renewed periodically at ministerial meetings, but was not renewed at the 14th WTO Ministerial Conference (MC14) and thus expired on 30 March 2026.

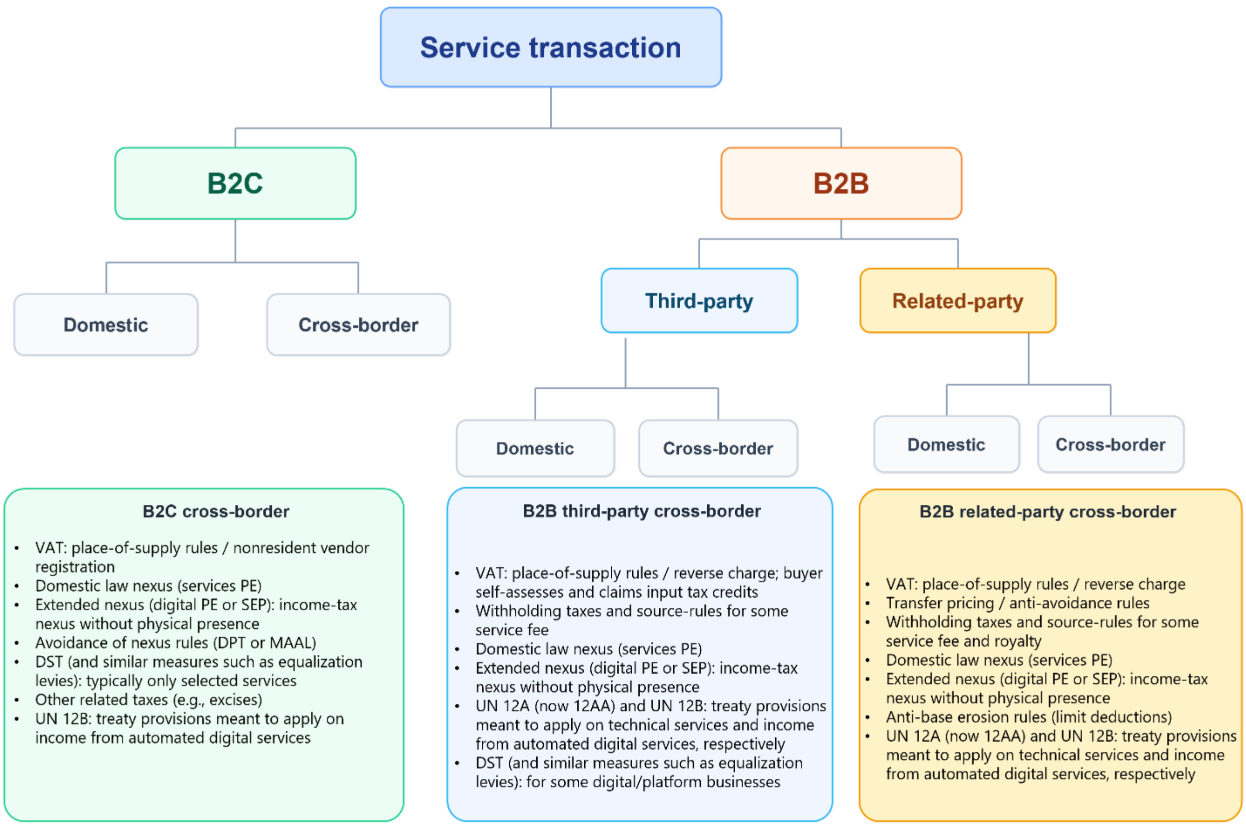
At the same time, jurisdictions have become increasingly concerned with the profits that foreign firms derive from *domestic consumers and users*. For cross-border *business* services, the main issues are more directly related to income taxation.[11] The core question is whether, and how, the market country can tax income from services supplied across borders. Where the supplier is an unrelated foreign firm, traditional rules often leave little room for taxing rights when services are supplied remotely, which is why source rules, withholding taxes, expanded nexus concepts, and, in some

[11] Concerns arise also in a VAT context, but more as an anti-avoidance concern to ensure that domestic VAT exempt business users are appropriately input taxed on locally purchased was well as imported services.

cases, DSTs have been proposed or adopted. Where the payment is made to a related party, the focus shifts to protecting the domestic tax base against deductible service fees and payments for digital services that may shift profits abroad (for example, through mispricing).

The following sections examine these instruments in turn.

Figure 8. Simple Service Transaction Taxonomy for Tax Analysis



Source: Authors' illustration. B2B: business-to-business; B2C: business-to-consumer; DPT: Diverted Profits Tax; DST: Digital Services Tax; MAAL: Multinational Anti-Avoidance Law; PE: permanent establishment; SEP: significant economic presence; UN: United Nations; VAT: value-added tax. Articles 12A, 12B, and 12AA refer to provisions in the United Nations Model Tax Convention. Note: Article 12AA as drafted can also apply to B2C service payments.

Box 1. WTO Moratorium on Customs Duties on Electronic Transmissions

Since 1998, WTO members have repeatedly renewed the practice of not imposing customs duties on electronic transmissions. At the 13th Ministerial Conference (MC13) in Abu Dhabi in 2024, they agreed to maintain the moratorium until MC14 or 31 March 2026, whichever is earlier. However, at MC14, held in Yaoundé in March 2026, members did not reach agreement—some sought a longer extension of up to five years, with a review after four, while others favored a shorter extension with earlier review—and the moratorium lapsed at the end of March 2026. Discussions on a possible draft text continue at the WTO in Geneva. In addition, 23 members (to date) have joined a statement confirming their intention to continue not imposing customs duties on electronic transmissions amongst themselves. No countries have implemented digital customs duties to date. At the same time, the plurilateral track on electronic commerce advanced separately. According to WTO reporting from MC14, the E-Commerce Agreement includes a commitment to a permanent moratorium on customs duties on electronic transmissions and 66 members have decided to implement it through interim arrangements. Meanwhile, its co-sponsors continue to seek its full incorporation into the WTO legal architecture (WTO, 2026). More generally, many regional and bilateral trade agreements also contain commitments not to impose such duties, and several recent U.S. Agreements on Reciprocal Trade go further by committing parties to support a permanent moratorium at the WTO (see Annex I).

Although “electronic transmissions” is not formally defined, the term is generally understood to cover software and other digitally transmitted cross-border content, such as music, films, video games, and design files. The principal case for the moratorium is that it preserves an open, predictable, and non-discriminatory environment for digital trade (Ruta and Jakubik, 2023).

The revenue case for introducing digital tariffs is weak. Estimates of hypothetical tariff revenue on digital flows replacing physical imports are small—around 0.01 to 0.33 percent of total government revenue—which would in practice be further constrained by regional trade commitments (Andrenelli and López González, 2023). By contrast, VAT applied to the same transactions can raise as much or more revenue, while being more efficient because it is non-discriminatory and exempts intermediate inputs (Section 3 of this paper; Hanappi et al., 2024).

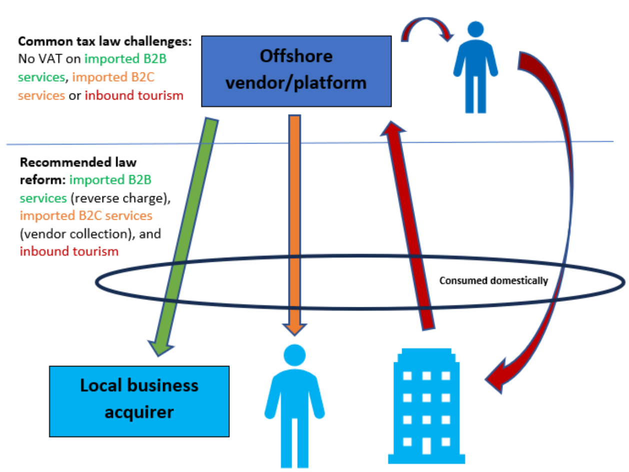
A separate but related debate has arisen in international income taxation. Some countries and model-based proposals have explored treating at least some payments for software and related digital products as royalties, thereby preserving source-country taxing rights through withholding taxes rather than customs duties. The trend is visible in the 2025 UN Model (discussed in Section 6), which expanded Article 12 to include payments for software, and in Australia’s 2024 draft ruling on when payments under software arrangements are subject to royalty withholding tax. These developments do not create customs duties and do not solve the broader problem of taxing all electronic transmissions, but they show that, in the absence of a multilateral trade solution, some jurisdictions are exploring income-tax-based alternatives.

3. VAT

As cross-border trade in services—particularly e-commerce and digital services—has expanded, countries have increasingly recognized that failing to tax imported services under the VAT can lead to significant revenue losses and competitive distortions, notably by placing domestic suppliers at a disadvantage relative to non-resident providers—or encouraging domestic suppliers to also supply from offshore. In response, many countries have moved to bring imports of services within the scope of their VAT systems.[12]

Existing VAT provisions have often proved inadequate to achieve that objective. The problem arises for imports by both businesses and consumers (Figure 9). In the B2B context, the issue is not that such services should bear the final burden of VAT, but that they should be properly integrated into the VAT collection framework. More generally, taxing cross-border services requires rules that determine where a service is deemed to be supplied for VAT purposes and how the tax is to be collected once that place has been identified. Because services often do not physically cross borders and can be supplied remotely, these questions are more complex than in the case of goods. As Figure 5 shows, services such as computer, professional, and other business services are more readily supplied through Mode 1 (cross-border supply) and depend less on physical presence than sectors such as travel or tourism; in many cases, they are also digitally delivered, making VAT on imported services less amenable to traditional border-based collection mechanisms.

Figure 9. VAT Treatment of Cross-Border Supplies of Services



Source: Authors.

[12] Similar concerns have arisen in relation to low value imports of goods, which under common customs and VAT *de minimis* exemptions have traditionally escaped taxation in the country of consumption and are increasingly being reviewed by countries. These issues—stemming from practical rather than conceptual concerns—are outside the scope of this paper.

More specifically, the VAT problem has often been compounded by place-of-supply rules that are insufficiently comprehensive to keep pace with developments in global services trade. In some cases, only a rudimentary rule exists, focused on the place of performance rather than the place of consumption—reflecting more traditional service delivery modes. As a result, services supplied by a non-resident without a physical presence in the jurisdiction may fall outside the scope of local VAT even when they are used or consumed domestically. Taxing imported services therefore typically requires legislative reform to modernize both place-of-supply and collection rules. Such reform is essential both to protect the VAT base against revenue leakage and to reduce the distortionary bias against domestic suppliers. The discussion next turns to the core legislative elements required to tax imported services effectively, beginning with place-of-supply rules and then collection mechanisms.

3.1 Core VAT Legislative Elements

3.1.1 Place-of-Supply Rules

Place-of-supply rules are essential to ensure that VAT is imposed under the destination principle, that is, on final domestic consumption. A common legislative deficiency arises when services are treated as being supplied locally only if they are performed locally by the supplier or its agent. Such a rule would mean, for example, that if digital services, such as audiovisual streaming, are provided to a local customer by a supplier resident abroad, the supply is treated as occurring outside the jurisdiction and therefore falls outside local VAT.

Accordingly, implementing the destination principle for services requires incorporating modern place-of-supply rules into domestic VAT law, drawing on established international guidance such as the OECD International VAT Guidelines (OECD, 2017). These rules allocate taxing rights by using legal proxies for the place of consumption, thereby reducing the risks of double taxation and unintended non-taxation that can arise from inconsistent national approaches. In most cases, the location of the customer or acquirer is the most appropriate proxy. Important exceptions arise where the service has a strong physical connection. In most cases, the location of the customer or acquirer is the most appropriate proxy. Important exceptions arise where the service has a strong physical connection. This is the case, for example, for services relating to immovable property, where the location of the property is generally the appropriate basis for taxation. Distinctions are also commonly drawn between supplies made to taxable businesses and those made to final consumers, reflecting the fact that suitable proxies may differ between B2B and B2C transactions.

The absence of adequate place-of-supply rules in domestic VAT law leads to non-taxation and creates opportunities for avoidance and planning,[13] with potentially significant revenue consequences. It can also distort competition by allowing imported services to escape tax while

[13] Legislative deficiencies can also be easily exploited through related party cross border service arrangements and can also be closed as part of the VAT modernization reform (for example, inadequate place of supply rules can mean acquisitions of services by a registered domestic taxpayer from a related offshore subsidiary performing those services from abroad are not subject to local VAT, which needs to be addressed through urgent law reform).

similar domestic services remain subject to VAT. Strengthening place-of-supply rules is therefore a central part of any effort to modernize the VAT treatment of cross-border services.

3.1.2 Collection Mechanisms

There are two main collection mechanisms for taxing imported services under the VAT. The first is the reverse-charge model, under which the normal operation of VAT is reversed, and the recipient of the imported service self-assesses and reports the tax. This model is typically used for B2B imported services, since it relies on the importer being registered for VAT.[14] The second is the vendor-collection model, also referred to as the vendor-registration model, under which the foreign supplier is required to register and account for VAT on services supplied into the jurisdiction. This model is typically used for B2C imported services and is also widely applied to low-value electronically ordered imported goods. More than 60 countries, including a growing number of middle-income and developing economies, have adopted this model for e-services and low-value imported goods (Brondolo and Konza, 2021).

Effective implementation typically also requires simplified registration, filing, and payment procedures for non-resident suppliers and, in some cases, rules that place collection obligations on digital platforms or treat them as deemed suppliers. These design choices are important not only for protecting revenue, but also for keeping compliance costs proportionate and administration feasible. Aligning domestic VAT legislation with approaches already implemented elsewhere can therefore help reduce compliance costs for large digital providers and improve administrability. Evidence from U.S. state sales-tax reforms after *Wayfair*[15] suggests that requiring remote vendors with economic nexus to collect and remit tax to the jurisdiction of the customer improved the alignment of taxation with consumption, but the immediate revenue gains were modest, consistent with many large online vendors already collecting and remitting before the reform (Agrawal and Fox, 2020).

3.1.3 Potential Revenue and Incidence

Ensuring that imported digital supplies are both brought within the VAT net and effectively collected can have significant revenue implications. In a static upper-bound exercise, the revenue potential of a fully effective VAT on domestic and cross-border digital services is estimated at up to around 12 percent of total tax revenue for advanced economies, with corresponding estimates of 3.4 percent for emerging market economies and 7.7 percent for low-income countries (Figure 10).[16] A significant

[14] Alternatively, some countries choose to ignore such services imports if made by fully taxable businesses and require reverse-charging only when the importer is not entitled to full input credits.

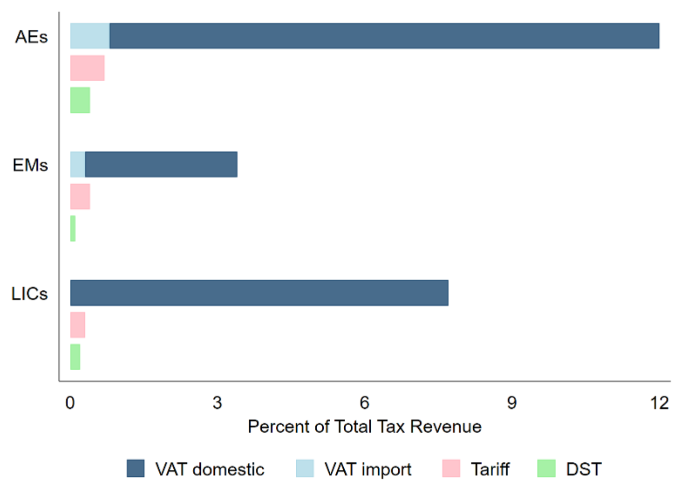
[15] Wayfair refers to the U.S. Supreme Court decision in South Dakota v. Wayfair, Inc., 585 U.S. 162 (2018), which held that U.S. states may charge sales tax on purchases made from out-of-state sellers even if the seller does not have a physical presence in the taxing state.

[16] For comparison, VAT (or sales tax where applicable) makes up on average around 28 percent of total tax revenue. In advanced economies, services typically represent over half of consumption—around 70 percent in the U.S. based on the latest BEA data—and consequently over half of the consumption tax base (70 percent of 28 percent is around 20 percent). Digitally deliverable services are the largest and fastest growing component of services in advanced economies. In these upper-bound estimates, we therefore assume all digitally deliverable services are delivered digitally.

share of this potential VAT revenue reflects domestic digital services rather than imports. More broadly, these upper-bound revenue estimates are substantially larger than those of either hypothetical digital tariffs (Box 1) or a narrowly based DST, while also being less distortionary.

The case for VAT is a case for broad-based destination taxation and this would rule out preferential VAT treatment of particular digital services and products. In some digital markets, especially where business models involve very low marginal distribution costs and strong network effects, reduced VAT need not be passed through into lower consumer prices. Theoretical work on digital media markets suggests, for example, that lower VAT on digital newspapers may increase prices and reduce sales, while for e-books the primary effect may be to raise publisher profits rather than lower consumer prices (Kind and Koethenbuerger, 2018).[17]

Figure 10. Potential Revenue from Effective VAT on Digital Services



Source: U.S. International Trade Commission, OECD TiVA, IMF WoRLD database, and authors' calculations.
Note: GDP-weighted average by income group. AEs = advanced economies; EMs = emerging market economies; LICs = low-income countries. Digitally deliverable services are defined as insurance and pension services; financial services; charges for intellectual property; telecom, computer, and information services; other business services; and 20 percent of heritage and recreational services, health services, and education services. The hypothetical tariff is assumed to be each country's average applied rate. The DST is assumed to apply to 10 percent of other (imported or locally provided) business services at a rate of 5 percent.

3.2 Specific Applications

3.2.1 Imported B2B Services

[17] The publisher is not just selling a newspaper to readers. It is also selling reader attention to advertisers. More readers make the advertising side more valuable, and digital distribution means the marginal cost of serving one more reader is very low. Therefore, when VAT changes, the firm does not just ask, "what price should I charge readers?" It asks, "how should I balance revenue from readers against revenue from advertisers?" In that setting, a VAT cut can make it optimal to rely less on advertising-side expansion and more on reader-side pricing, so the subscription price can rise and circulation can fall. The e-book case is not driven by the same reader–advertiser two-sided logic. It is simply that publishers can keep more of the tax benefit in their margins.

In the B2B context, the main practical issue is not whether imported services should bear the final burden of VAT, but whether they are properly brought within the VAT collection framework. This is particularly important where the recipient is not entitled to full input tax recovery. This issue is especially significant for VAT-exempt or partially exempt entities—such as educational institutions, public bodies, financial institutions, and businesses below the registration threshold—because untaxed imported services result in VAT revenue loss and distort competition in favor of offshore suppliers.

Accordingly, VAT reform should ensure that imported B2B services are brought within the scope of the reverse charge where the service would have been taxable if acquired domestically, especially where the purchaser would not be entitled to full input tax recovery if the service were acquired domestically. Particular attention therefore needs to be given to cases in which the acquirer does not use the service wholly for making taxable supplies, as well as to large unregistered businesses and cross-border internal supplies within the same legal entity. In these settings, the reverse charge serves not merely as a collection mechanism, but as a means of preserving neutrality between domestic and foreign service providers.

3.2.2 Imported B2C Services

In the B2C context, the central challenge is different: because the final consumer is not ordinarily in a position to self-assess VAT, collection must generally take place through the non-resident supplier or, in appropriate cases, through the digital platform facilitating the transaction. This issue is especially important for imported electronic and digital services, which can be supplied remotely and at scale into a jurisdiction without any physical presence by the supplier. Without effective collection rules, such services may escape VAT even when they are consumed domestically.

Modern VAT practice therefore requires domestic law to ensure that B2C services supplied by non-residents to local consumers are brought within the VAT net, typically through vendor-registration and vendor-collection obligations supported by simplified compliance procedures. In some cases, it may also be appropriate to place liability on the platform that controls the customer interface, payment flow, or key terms of the transaction. These rules are central to ensuring that the destination principle operates effectively in consumer markets for cross-border digital services.

3.2.3 VAT on Offshore Booking Platforms for Inbound Tourism

A further legislative gap in many VAT systems concerns inbound tourism products sold through offshore travel agents and online booking platforms. This issue is distinct because the underlying service is consumed in the destination country—that is, in the country of tourism—even when the platform, the payment, and sometimes the customers are located abroad. It is also becoming more important as an increasing share of accommodation, tour packages, and related tourism services is sold through digital channels. Offshore booking platforms may operate either by purchasing rooms or packages from local providers and on-selling them to tourists, or by acting as intermediaries that facilitate bookings for a commission.

General place-of-supply rules are often not sufficient to ensure that these transactions are properly taxed in the country of tourism. Legislative reform is therefore often needed to ensure that accommodation and other inbound tourism products—such as meals, local transport, tours, and related activities—are treated as supplied in the jurisdiction where they are consumed. In particular, supplies relating to immovable property, such as hotel accommodation, should not be treated as VAT-free exports merely because they are sold to or through an offshore platform. A specific rule may therefore be needed to ensure that the full value of inbound tourism products remains subject to local VAT, whether the services are purchased directly from the hotel or through a foreign intermediary. Where platforms effectively control the sale, payment, or customer relationship, countries may also consider placing collection obligations directly on the platform. This is important both to protect revenue and to preserve neutrality between domestic suppliers and offshore booking platforms.

4. DSTs and Related Levies

4.1 DSTs

DSTs arose because traditional income-tax rules often left market jurisdictions with little or no taxing rights over *profits* from certain highly digital business models, especially where services could be supplied remotely without a sufficient local presence. Broadly speaking, a DST is a tax on the gross revenues derived from specified digital services in a market jurisdiction, rather than a tax on profit.[18] Its rationale, however, is not to tax domestic consumption as such, but to secure some taxation of non-resident firms' market-linked *income* where ordinary income-tax rules leave the market jurisdiction with little or no taxing rights. The spread of DSTs was also closely tied to dissatisfaction with the slow pace of multilateral reform, with several countries—such as the UK—introducing them as 'interim' or 'temporary' measures pending a multilateral reform. Pillar One of the 2021 OECD/G20 Inclusive Framework agreement was intended, *inter alia*, to support the withdrawal of existing DSTs and a standstill on new DSTs and similar measures, but those efforts have stalled, and DSTs therefore continue to matter in practice. A comparative description of the key design features of selected DST regimes is provided in Annex II.

DSTs differ from both tariffs and VAT. Like tariffs, they can be passed through to domestic consumers and may generate trade frictions. This trade-policy dimension has become increasingly salient in practice: recent U.S. Agreements on Reciprocal Trade have included commitments by partner countries to refrain from imposing DSTs that discriminate against U.S. companies in law or in fact (Annex I). Unlike tariffs, however, DSTs are, in principle, not confined to imports and can also apply to comparable domestic supplies. Unlike VAT, DSTs are not designed as broad-based taxes on final domestic consumption; rather, they apply to selected producers' gross revenues, including from intermediate transactions, without any credit mechanism to relieve business users or prevent cascading. The incidence, neutrality properties, and revenue implications of these differences are central to the policy assessment that follows.

DSTs also differ from withholding taxes. A withholding tax is typically collected by the local payer on a specific cross-border payment and is tied to the legal characterization of that payment, such as royalties, interest, or fees for services. By contrast, DSTs are generally self-assessed and paid directly

[18] The legal design of DSTs is intended to fall outside the scope of the ordinary income tax treaty framework.

by the in-scope multinational group, often annually, on destination-sourced gross revenues from specified digital services. DST liability therefore does not depend simply on the residence of the payer or the characterization of an outbound payment, but on whether the relevant digital service is used, consumed, or monetized in the market jurisdiction, often through user-location or customer-location proxies. The distinction is especially clear in online advertising. Suppose an advertiser resident in country A purchases online advertising services from a platform resident in country B, and the advertisement is viewed by users in country C. A DST in country C may tax the platform's revenue by reference to the location of those users, even though the advertising contract and payment are between parties resident in countries A and B. A withholding tax would ordinarily require a local payer in country C and therefore would not generally reach a case in which country C's connection is to the audience rather than to the payment. These features also distinguish most DSTs from withholding-style equalization levies. India's 2016 Equalization Levy, for example, was collected through withholding on specified digital advertising payments and therefore resembled a source-based withholding tax more than a supplier-paid DST.[19]

Whether DSTs in fact succeed in taxing non-resident firms' market-linked income, however, depends on the economic incidence of the tax.[20] If the tax is passed through to domestic consumers or business users, then the DST does not in fact succeed in taxing non-resident firms' market-linked profits. From an economic perspective, DSTs are problematic because their incidence is poorly targeted and their design is non-neutral. First, they tax gross revenue rather than profit and therefore apply irrespective of whether the underlying activity is profitable, imposing a relatively heavier burden on low-margin businesses. Second, DSTs can apply to both B2C and B2B transactions. This is a key difference from VAT: VAT is intended to tax final consumption and uses input tax credits to prevent tax from remaining embedded in business inputs, whereas DSTs can burden intermediate transactions as well as final sales. Because DSTs generally do not provide credits or refunds for tax paid at earlier stages of the supply chain, they can cascade, increasing production costs and distorting pricing. They may also overlap with VAT. In the United Kingdom, for example, in-scope digital services may be subject to DST while supplies of digital services to consumers are separately liable to VAT. Overall, the resulting burden may fall on shareholders through lower profits, on business users through higher input costs, or on final consumers through higher prices.

Theoretically, in multi-sided platform markets, the platform's response to a DST modeled as an ad valorem tax on advertising revenue depends on cost structure, and if operating costs are negligible, the tax may not affect platform behavior at all, acting instead as a tax on inframarginal rents rather than one that changes prices or quantities (Kind and Schjelderup, 2025). This result, however, is sensitive to the underlying assumptions and need not survive in settings with platform competition. In Kind et al. (2025), for instance, a DST can lower tax revenue in the implementing country, weaken downstream price competition, and reduce consumer surplus by shifting activity toward the untaxed side of the market.

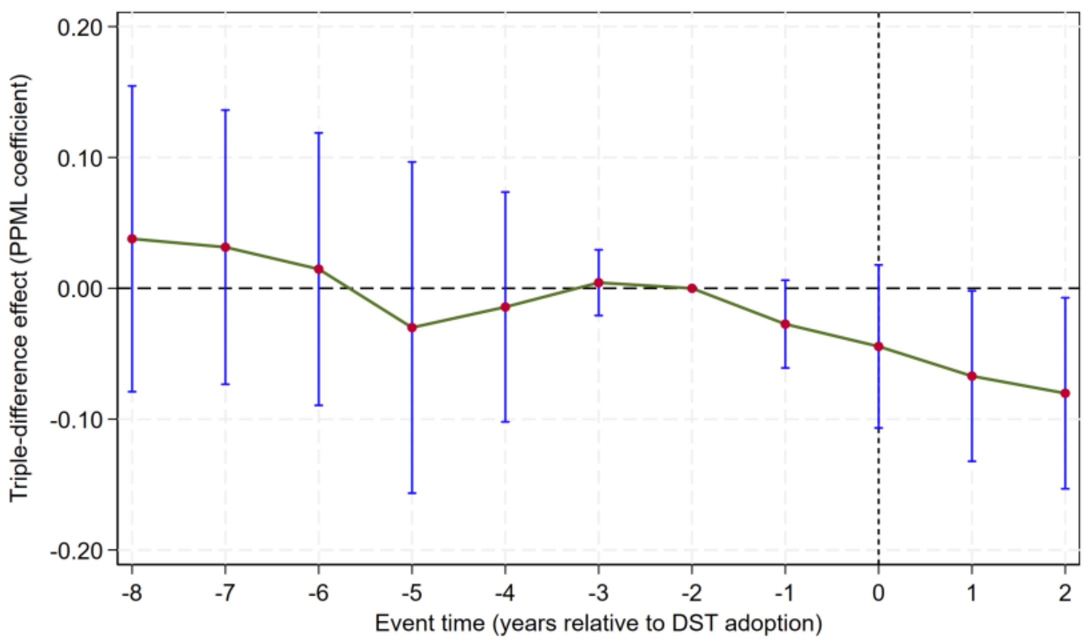
[19] By contrast, India's later 2020 Equalization Levy on e-commerce supply or services was closer in design to a DST, as it applied directly to the supplier using similar destination-based sourcing rules. Both levies have now been abolished: the 2020 levy with effect from 1 August 2024, and the 2016 levy with effect from 1 April 2025.

[20] For a parallel discussion, in the context of proposals to "tax AI", the relevant question is also economic incidence rather than statutory form; see Hebous and Klemm (2026).

That uncertainty over incidence itself underscores the need for further empirical work. Suggestive empirical evidence points to the effects of DSTs on trade flows that are difficult to reconcile with the view that the tax is borne entirely by foreign platform rents (

Figure **11**). Using bilateral services-trade data and variation in DST adoption across countries, we find a negative and statistically significant effect of DST adoption on digital services imports relative to non-digital services. While this evidence does not identify incidence cleanly, it is consistent with DSTs raising the domestic user cost of imported digital services and thereby reducing demand for those inputs.

Figure 11. Estimated Effects of DSTs on Digital Services Imports



Source: Authors' estimation. The figure reports stacked event-study estimates from a triple-difference specification that compares imports of digital services with bilateral imports of non-digital services across DST-adopting and control countries around the year of DST adoption. The estimating equation is: $\mathbb{E}[y_{ipst} \mid X] = \exp\left(\sum_{k\neq-2} \beta_k [\mathbb{1}\{t - T_i = k\} \times D_s \times DST_i] + \upsilon_{ipsc} + \varphi_{iptc} + \psi_{st}\right)$, where y_{ipst} denotes bilateral imports of service category s from exporter p to importer i in year t, estimated by Poisson pseudo-maximum likelihood (PPML). Event time is defined as $k = t - T_i$, where T_i is the calendar year in which importer i adopts a DST. The coefficients β_k trace the dynamic response of digital services imports relative to non-digital services for treated importers, normalized to event time $k = -2$. D_s is an indicator for digital services (EBOPS category SI) and DST_i indicates DST-adopting countries. Fixed effects υ_{ipsc} (importer–exporter–service–cohort), ϕ_{iptc} (importer–exporter–year–cohort), and ψ_{st} (service–year) absorb, respectively, time-invariant bilateral trade costs specific to each service and cohort, importer and exporter multilateral resistance varying by year and cohort, and global demand shifts common to all service categories. The stacked design constructs a separate clean-control cohort for each adopting country, following the stacked cohort approach. Data are from the OECD–WTO Balanced Trade in Services dataset (BaTIS), covering bilateral service trade flows for 2005–2023. Vertical bars indicate 95 percent confidence intervals based on multi-way clustered standard errors using t-distributed critical values, $G - 1 = 199$ degrees of freedom.

Additional evidence points in the same direction. A French ex ante impact assessment of the proposed DST estimated that around 55 percent of the burden would be borne by consumers, about

40 percent by businesses using digital platforms, and only about 5 percent by the targeted large internet companies. Company pricing practices are also consistent with some pass-through. Google states that DST fees or regulatory operating costs may be charged in addition to advertising costs in certain jurisdictions, with currently listed surcharges including 5 percent in Austria, 2 percent in the United Kingdom, 2 percent in France, 2.5 percent in Italy, and 3 percent in Spain. Amazon likewise applies digital services fees to certain seller and FBA charges in the UK, France, Italy, and Spain. Using fee data on Amazon's Fulfillment by Amazon services in France, Italy, Spain, and the United Kingdom, together with product-level price data, Langenmayr and Muddasani (2025) find substantial pass-through of DST-induced fee increases to third-party sellers and, in turn, to consumers.[21]

To contain these distortions, DSTs have generally been introduced at relatively low rates and with narrow bases. The United Kingdom applies a 2 percent DST on in-scope revenues, while Austria applies a 5 percent tax limited to online advertising services. Another defining feature of DSTs is their narrow scope, both in terms of covered services and covered suppliers. In practice, DSTs typically do not seek to tax digital services in general, but only a limited set of specifically defined activities, most commonly online advertising and online intermediation, but they typically apply to both resident and non-resident in-scope suppliers to formally align with non-discrimination standards. This narrowness reflects both practical and political considerations. A broad tax on all remotely supplied or automated services would be harder to define precisely, more vulnerable to obsolescence and boundary problems as technology and business models evolve, and more likely to generate extensive cascading through business inputs. At the same time, limiting the tax to a small number of specifically defined services increases the risk of ring-fencing (predominantly taxing imported services) and intensifies boundary problems between taxed and untaxed services. DSTs also rely on detailed destination-based sourcing rules to identify the market in which the service is used, often through proxies tied to user location, customer location, or the location of the underlying transaction. These rules can be complex, as discussed in Annex II.[22]

DSTs are also generally limited to very large multinational groups through high global and domestic revenue thresholds. In the United Kingdom, for example, the tax applies only where a group has at least £500 million of worldwide in-scope revenue and more than £25 million attributable to UK users. Such thresholds sharply limit the number of taxpayers, intensify line-drawing problems, and can reinforce the ring-fencing effect by concentrating the tax on a small number of very large, predominantly foreign, multinational groups, even where the legal design is formally non-discriminatory.[23]

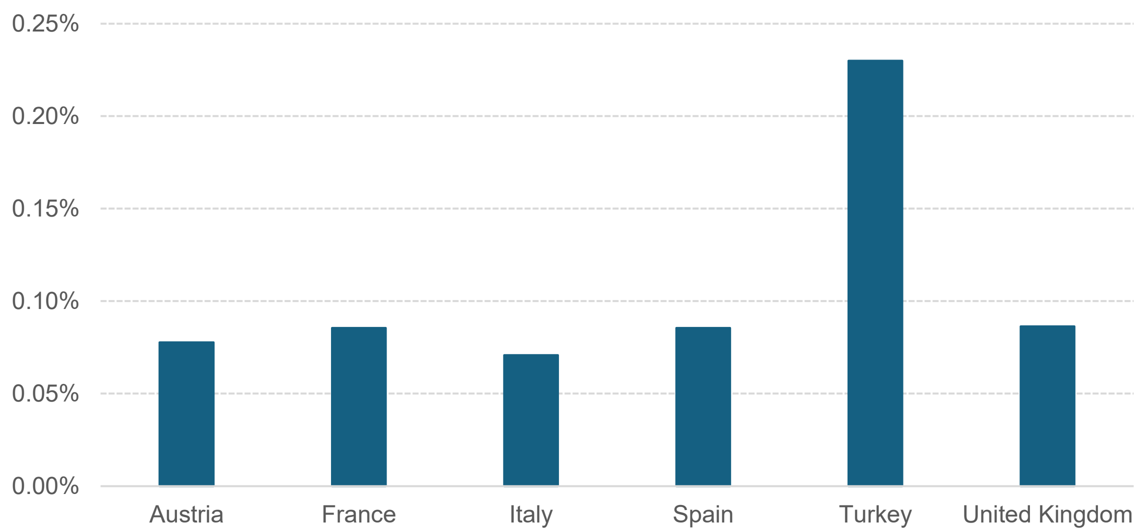
[21] Langenmayr and Muddasani (2025) study physical goods sold through Amazon's marketplace, but the relevant tax is imposed on the platform's digital intermediation service rather than on the goods themselves. Their evidence therefore speaks to DST incidence in a platform setting, rather than providing direct evidence on digital-services trade.

[22] Also, implementing these rules typically requires taxpayers to set up systems that allocate revenues across jurisdictions and categories of taxable services, often relying on sophisticated data-management and analytics tools to identify the relevant indicators. Tax administrations, in turn, needs to invest in new administrative infrastructure and, in some cases, third-party reporting obligations to enforce the tax.

[23] As a result, some scholars have characterized DSTs as 'tariff-like' in their practical operation and incidence, though not necessarily in the formal legal sense (Devereux, 2025; Narotzki, 2025).

In revenue terms, DSTs have generally been modest at the macroeconomic level, raising less than 0.1 percent of total tax revenue in most implementing jurisdictions (Figure 12). Collection, however, is highly concentrated on a very small number of large multinational groups. In the United Kingdom, 18 business groups made a DST payment for the 2020–21 tax year, and five of those 18 paid about 90 percent of total DST revenue (NAO, 2022). DSTs may therefore be modest in aggregate yet still non-negligible from the perspective of firms in scope.

Figure 12. DST Revenue as a Share of Total Tax Revenue, Selected Countries



Source: Data compiled by the authors based on various sources including annual tax collection reports in Spain and Türkiye, HMRC (2025), Bloomberg Tax, IMF WoRLD 2026, and Investing.com. Note: Numbers for 2023, total revenue excludes social security contributions.

4.2 Other Related Taxes: Excises and Transaction Taxes

Other taxes with some functional resemblance to DSTs also featured in the debate, but were explicitly treated in the Pillar One discussions as falling outside that category. These carve-outs are informative because they help clarify what DSTs were understood to be: not broad-based consumption taxes such as VAT; not traditional anti-avoidance rules tied to physical-presence nexus and intended to reinforce existing income-tax concepts; and not generally applicable per-unit or per-transaction taxes, such as fixed charges per digital booking, download, subscription, or online advertisement displayed. It is this third carve-out that is the focus here.

These levies differ from DSTs most clearly in legal design and policy framing, while the economic distinction is less pronounced. As set out in the previous subsection, a DST is typically framed as a tax on gross revenues from specified digital services in the market jurisdiction, often linked to the residence or scale of the taxpayer through group-level revenue thresholds, and introduced against the background of perceived gaps in income-tax nexus and profit allocation rules. By contrast, the excises and transaction taxes of the kind considered here are generally not conditioned on who the taxpayer is and instead apply to any transaction or activity falling within their scope regardless of turnover. Further, while they may be imposed on particular categories of digital transactions or media activities—such as video streaming, music streaming, online broadcasting, or digital advertising carried out on specific platforms—, they are usually justified by sector-specific regulatory or cultural-policy objectives. They also differ from DSTs in the location of the taxing event: a DST may source revenue by reference to the location of users or audience members (for example, by reference to where advertisements are viewed) even where the underlying payment arises in a transaction booked between parties in other jurisdictions, whereas the excises and transaction taxes considered here are usually tied more directly to a taxable transaction or regulated activity occurring in the implementing jurisdiction. Like DSTs, many of these levies also appear to fall outside the ordinary income-tax treaty framework.

Economically, however, the difference is less clear-cut, since many of these levies, like DSTs, are imposed on gross receipts or on a per-transaction basis rather than on net income and may, depending on incidence, be passed forward into higher prices. Moreover, in many cases, the proceeds are earmarked to support domestic film, audiovisual, music, or media funds. That earmarking alone, however, does not by itself establish the kind of corrective rationale that typically underpins excises,[24] nor does it constitute a meaningful economic distinction between the two types of taxes.

Comparative experience illustrates the point. For instance, Canada, Denmark, France, and Côte d'Ivoire have all adopted taxes or levies on specific digital media or platform activities. Canada imposes a levy on online audio and audiovisual broadcasting services; Denmark applies a contribution to on-demand audiovisual media services; France taxes both video-streaming and music-streaming services; and Côte d'Ivoire taxes video-on-demand broadcasting. These levies are therefore selective in a different way from DSTs: rather than targeting certain digital business models as such, they are tied to particular transactions, media sectors, or regulated activities. In several cases, this narrower focus is reinforced by the stated use of proceeds or policy objective: Denmark's Act expressly aims to promote Danish audiovisual content; Canada's levy is framed as support for the Canadian broadcasting system; and in France, revenues from the music-streaming tax are used to fund the aid program of the National Music Centre.[25]

For present purposes, the main point is classificatory. Measures of this kind may resemble DSTs economically in that they target digital transactions, often rely on destination-based proxies, and may in practice fall heavily on large multinational platforms. Even so, grouping them together with

[24] In principle, a levy on specific digital activities could be defended on corrective grounds, for example by reference to addiction or other social and psychological harms associated with excessive use. That is a different rationale from the cultural-policy or sector-support objectives emphasized here.

[25] For example, Denmark's Cultural Contribution Act states that its purpose is to promote Danish audiovisual content, including new Danish films, series, and documentaries; the Canadian Radio-television and Telecommunications Commission describes the online-streaming contribution requirement as support for the Canadian broadcasting system; and the Centre national de la musique states that revenues from the streaming tax complement the live-performance tax in financing its aid program.

DSTs would obscure an important distinction. DSTs are selective taxes on gross revenue introduced in response to perceived shortcomings in the international taxation of digital business models. By contrast, the sector-specific levies considered here are narrower and are often motivated by regulatory or cultural objectives, tied directly to a specific transaction, with revenues frequently earmarked for related purposes. Those features make them less closely connected to the core Pillar One problem of reallocating taxing rights over residual profit.

5. Taxing Cross-Border Services via Income Taxes

Unlike VAT or DSTs, income-tax responses do not primarily tax revenue or transactions as such. Instead, they either seek to bring cross-border services within the scope of business income tax or to protect the domestic income tax base against deductible outbound payments. Following the publication of the BEPS Action 1 report, addressing the challenge of allocating taxing rights became the basis for the agreement on Amount A under Pillar One of the Two-Pillar Solution. While not aimed solely at services, it sought to address the same underlying concerns arising from the expansion of cross-border services by using a novel approach to allocate taxing rights over certain income to market jurisdictions without any requirement of physical presence. The exact status of Pillar One remains in limbo and the likelihood of ultimate adoption by a sufficient number of jurisdictions appears uncertain.

In the absence of an adopted global solution, broadly, three types of response have been observed thus far. The first expands nexus, so that remote service provision may create a taxable presence even without a traditional PE. The second seeks to secure source-country taxation of cross-border service payments, including remote services, relying on withholding tax mechanisms. The third uses anti-base-erosion instruments to discourage or neutralize arrangements through which service payments or related charges shift profits abroad.

These approaches differ not only in legal design, but also in the transactions they most naturally address. Expanded nexus rules are aimed primarily at remote cross-border services supplied into a market without physical presence and may apply to both B2B and B2C transactions, though they are less naturally suited to related-party payments. Withholding taxes apply mainly to B2B payments, whether to unrelated or related parties, because they usually rely on an identifiable payer or withholding agent. Anti-base-erosion instruments are directed chiefly at related-party B2B transactions, especially deductible outbound payments for services, royalties, and similar charges. This is because such instruments typically operate through the *domestic* treatment of the resident payer—for example, by limiting deductions for outbound payments—rather than by directly taxing the non-resident recipient. Anti-base erosion instruments may therefore be less constrained by the ordinary treaty allocation of taxing rights than measures aimed directly at taxing the foreign recipient, subject in particular to non-discrimination and other applicable treaty provisions. In this sense, they seek to neutralize the asymmetry of having a deductible payment domestically but escape corresponding taxation in the hands of the foreign affiliate. Applicable tax treaty constraints nonetheless require careful analysis. Treaty-based reforms are discussed separately in the next section.

5.1. Expanding Nexus: Digital PE and Significant Economic Presence

One response has been to expand the nexus threshold for net-based taxation of business income so that remote cross-border service provision may give rise to taxing rights even without a fixed place of business. Traditionally, that threshold has been the existence of a PE, typically requiring some form of physical presence, such as an office, branch, fixed place of business, or, in some cases, a dependent agent. Expanding nexus seeks to move beyond that test by recognizing that sustained digital interaction with a market may itself justify taxation. As an income tax instrument, however, this response is distinct from a DST or withholding tax: it does not impose a separate levy on gross receipts, but instead seeks to bring the non-resident enterprise within the ordinary income-tax net by deeming it to have a taxable business presence in the market jurisdiction.

Two terms are useful here and should be kept distinct. "Digital PE" is a broad label for rules that deem a PE, or PE-like taxable presence, to arise on the basis of a non-physical or digital connection with the market. "Significant economic presence" (SEP) is one particular formulation of that broader idea. In particular, SEP is best understood as a specific design of digital nexus, not as a separate category of instrument. The OECD's BEPS Action 1 work on the digital economy examined SEP as a possible new nexus for net-basis taxation where a non-resident enterprise maintains a purposeful and sustained interaction with a country's economy through digital means. Revenue thresholds and, potentially, user- or digital-based factors formed part of that analysis.[26]

In practice, any such nexus-expansion rule requires answering two questions: first, what level of economic interaction with a jurisdiction is sufficient to create nexus; and second, how profits should be attributed once such nexus is deemed to exist. That distinction between nexus and profit attribution is central. A rule may succeed in deeming a digital PE to exist, including through a SEP-type nexus rule, yet still allocate little or no profit to that presence under traditional income-tax principles.

Treaty constraints are crucial in this respect. In a country that is not bound by a tax treaty, domestic law can in principle adopt a broad non-physical nexus standard. In treaty situations, however, the legal effect of SEP-type rules is often limited, since most treaties continue to tie business-profit taxation to a PE concept grounded in physical presence.

Even where a treaty does not prevent the domestic rule from being enacted, practical enforcement remains difficult if the foreign supplier has no personnel, assets, or legal presence in the market jurisdiction.

Even where nexus can be established, profit attribution remains problematic. Under existing arm's-length approaches, there may be few or no functions, assets, or risks located in the market jurisdiction. Applying traditional arm's-length principles in these cases can result in very limited profits being allocated and create significant uncertainty as to what profits are attributable. In the absence of a globally agreed approach, one solution has been to combine nexus expansion with

[26] See OECD (2015).

turnover-based taxation or withholding mechanisms. Doing so, however, creates difficult questions about the interaction of such rules with existing profit allocation rules and may give rise to double taxation.

The experience with VAT on imported digital services is instructive, but only up to a point. VAT systems show that physical presence is not indispensable for tax collection: non-resident suppliers or platforms can be required to register, report, and remit tax where services are consumed. The analogy to income tax is limited, however, and distinguishable given tax treaty constraints do not apply to VAT. Further, VAT is imposed on *transactions* and does not require profit attribution. By contrast, a digital PE, SEP, or similar income-tax nexus rule may establish a taxable presence without determining how much profit should be allocated to that presence. Unless accompanied by a formulaic allocation method, a gross-basis charge, or a withholding mechanism, such a rule may solve the nexus problem while leaving the profit-attribution problem largely unresolved.

Several countries have nonetheless adopted SEP-type rules or related digital PE concepts. India, Indonesia, Colombia, Kenya, Nigeria, and Slovakia have all introduced some form of non-physical nexus rule, although the design and legal effect vary considerably. India, for example, introduced thresholds based on revenue and user interaction. Colombia uses a combination of deliberate and systematic interaction with the market and customer thresholds. Kenya's 2024 Significant Economic Presence Tax is formally framed as a nexus rule, but in substance operates more like a turnover tax on in-scope digital services. Nigeria's regime combines SEP concepts with final withholding at source, blurring the distinction between expanded nexus and source-based taxation. At the regional level, the European Commission's 2018 proposal for a digital PE directive followed a similar logic, though it was never adopted.

Taken together, these measures illustrate both the appeal and the limitations of expanded nexus rules. They respond directly to the concern that firms can participate intensively in a market without physical presence. But they also expose a central difficulty: unless profit-attribution rules are also materially changed, a deemed digital presence risks attracting no or very limited taxable profits under traditional arm's-length methods. Nexus expansion, by itself, therefore, addresses only one dimension of the problem.

5.2 Source Rules and Withholding Taxes on Cross-Border Services

A second response has been to strengthen source-country taxation of cross-border services, often through withholding taxes supported by broad source rules. This approach is more direct than SEP-type nexus expansion. Rather than trying to deem a taxable presence and then attribute profits on a net basis, it taxes the relevant payment itself—typically on a gross basis—when that payment is made from the jurisdiction, or when the service is used in, or otherwise connected to, the jurisdiction. Withholding taxes can also serve an anti-avoidance function by discouraging large outbound payments for services, royalties, management fees, or similar charges to lower-tax jurisdictions. Recent empirical evidence using bilateral trade data suggests that higher withholding taxes are associated with lower imports of royalties and technical service fees (Liu et al., 2025), a pattern consistent with reduced base-eroding payments. Because the underlying service-trade data do not distinguish between related-party and unrelated-party imports, however, the estimates cannot cleanly separate anti-avoidance effects from real effects on trade and value creation.

In domestic law, countries are generally free to define the source and categories of income for the purposes of imposing withholding taxes on payments for services. Such taxes may apply simply because an outbound payment is made by a resident firm (or a local PE of a foreign firm), or because the services are used in local business activities, connected to local property, or otherwise linked to the local market, including through the location of the user. In practice, such taxes have historically been primarily relevant for business-to-business transactions, but countries are increasingly seeking to extend them to remote services supplied to domestic consumers, potentially in combination with new third-party reporting or collection obligations to support compliance (for example, online platforms or financial intermediaries). In principle, these withholding taxes can often be credited in the recipient's residence country, but in practice such credits may be unavailable or limited, especially if the measure departs from established international tax norms. Further contractual gross-up obligations (for example, an obligation for the service recipient to pay an additional amount to the service provider for the withholding tax borne) can affect who bears the burden of that withholding tax.

Tax treaties, however, significantly constrain this approach. Where the foreign supplier has no PE in the source country, treaties often prevent business profits from being taxed there at all. Royalty articles may still allow withholding, though usually at reduced rates, and some treaties also permit withholding on fees for technical services. Lower treaty withholding-tax rates may also facilitate treaty shopping by making it attractive to route royalty payments through intermediary jurisdictions with more favorable treaty networks. Using bilateral royalty-flow data, Lejour and van 't Riet (2025) estimate that 13–25 percent of bilateral royalty flows are tax-motivated and associate them with global revenue losses of US$3.3–8 billion in 2018. The OECD's BEPS Action 1 work considered withholding taxes as a possible response to the tax challenges of digital services, but did not recommend them as the basis for a coordinated multilateral solution.

Even so, a number of countries have used withholding taxes supported by broad source rules to secure at least some source-country tax on remote service provision. Uruguay, for example, amended its source rules so that audiovisual services supplied over the internet to users in Uruguay are treated as Uruguayan-source income, with collection through withholding by designated financial intermediaries. Paraguay introduced source taxation for digital services used or exploited in Paraguay, with withholding by the business payer in B2B cases and by financial intermediaries in B2C cases. Malaysia expanded its definition of royalties subject to a withholding tax to encompass payments for "visual images or sounds" transmitted through information and communication technology. More broadly, some regimes combine withholding taxes with nexus expansion: Nigeria, for example, treats SEP-type digital activity as taxable but relies on withholding as the practical collection mechanism rather than attempting full net-basis corporate taxation.

The attraction of this approach is administrative simplicity. Its weakness is that it taxes gross payments rather than net income and remains heavily constrained by tax treaties. Source-based withholding on services therefore occupies an intermediate position: it preserves the legal form of an income-tax instrument, but in operation it often resembles a gross-basis levy more than an ordinary tax on business profits.

5.3 Anti-Base-Erosion Rules and Related Instruments

A third set of responses is aimed less at expanding taxing rights over remote market participation than at protecting the domestic tax base against deductible outbound payments and artificial arrangements around domestic sales. These measures target the use of service fees, royalties, management charges, and other intra-group arrangements to shift profits out of the jurisdiction in ways that may comply formally with existing nexus rules but still erode the domestic corporate tax base. The underlying concerns are familiar: existing PE thresholds may be too easy to avoid; transfer-pricing rules may allocate profits to entities with limited substance; and some jurisdictions may offer low tax rates or other features that attract mobile service income.

Three broad types of instrument are common here: denial of deductions, diverted profits taxes, and targeted deemed-PE rules.

Denial of deductions. One blunt response is to deny deductions for certain outbound service payments. These rules go beyond ordinary transfer-pricing adjustments or business-purpose tests and instead use alternative triggers, such as the destination of the payment, the tax rate in the recipient jurisdiction, or the absence of sufficient economic substance there. The closest precedent is a interest-deduction limitation rule. Under BEPS Action 4, the OECD/G20 project endorsed a common approach based on limiting net interest deductions by reference to earnings, typically through a fixed-ratio rule, reflecting the concern that deductible interest payments are a major channel for base erosion. The same logic underlies deduction-limitation rules for other outbound payments, including service fees, royalties, management charges, and intangible-related charges: the domestic base is protected by denying or limiting deductions rather than by directly taxing the non-resident recipient.

Such measures are often targeted at related-party payments, high-risk categories of payment such as intangible-related charges, or counterparties in listed or low-tax jurisdictions, and may include escape clauses based on business purpose or substance. This approach is one of the options proposed by the EU's list-based "defensive measures", and Australia has moved in a similar direction by disallowing deductions for certain payments by very large groups to related parties in jurisdictions with tax rates below 15 percent. Other legal design alternatives are possible, such as a separate minimum tax assessment—like the U.S. Base Erosion and Anti-Abuse Tax (BEAT)—which operates to reverse tax benefits embodied in relevant base erosion payments without formally denying them. The trade-off is that such rules may also affect real activity when they apply to genuine business payments. Evidence on interest-limitation rules suggests that these restrictions can adversely affect investment and other real outcomes (Bashir et al., 2024; De Simone et al., 2025).

Diverted profits taxes. A more targeted approach is to impose a separate tax aimed less at raising revenue than at changing taxpayer behavior. The United Kingdom and Australia have both adopted diverted profits taxes that apply at rates above the ordinary corporate income tax and are designed to discourage arrangements that either avoid PE status or shift profits through intragroup transactions lacking sufficient economic substance. In the UK, the diverted profits tax applied both where a non-resident avoided creating a UK PE despite substantial sales activity and where a UK resident made payments to a foreign related party under arrangements that produced an effective tax mismatch and lacked sufficient substance. The UK repealed the diverted profits tax in Finance Act 2026 and replaced it with a corporation tax charge on unassessed transfer pricing profits, while modernizing its dependent-agent PE provisions. Australia's diverted profits tax is more focused on effective mismatch arrangements. In both countries, the higher rate and the design of the rules and charging mechanisms were intended to induce firms to restructure so that more income falls within the ordinary corporate tax net. Diverted profits taxes are thus designed primarily to change behavior and bring profits into the ordinary corporate tax or transfer-pricing net, rather than mainly to raise revenue as standalone taxes.[27]

Targeted deemed-PE rules. A final approach is to deem a PE to exist in cases where multinational groups sell into a market while deliberately structuring their local presence to fall short of treaty or domestic PE thresholds. Unlike SEP-type rules, these measures are not general tests of digital market presence; they target specific avoidance structures. Australia's Multinational Anti-Avoidance Law and New Zealand's PE anti-avoidance rules are examples. They typically apply when a large multinational group makes supplies to local customers, a local affiliate or when an agent performs activities connected with those supplies which are made to local customers, and one of the main purposes of the arrangement is to secure a tax benefit by avoiding PE status. Where those conditions are met, the foreign seller may be deemed to have a local PE and normal profit-attribution rules can then apply.

These anti-base-erosion responses differ from expanded nexus rules in an important respect. SEP-type rules seek to extend taxing rights in response to remote participation in a market with no physical presence. Anti-base-erosion rules, by contrast, target arrangements that already involve some physical presence in the jurisdiction but are structured in ways that undermine the domestic tax base. In that sense, they are less about redefining where taxing rights arise and more about protecting those rights from erosion once they exist.

5.4 Possible Overlap

Although analytically distinct, the three income tax based approaches discussed above are not mutually exclusive. Expanded nexus rules are aimed primarily at bringing non-resident firms within the scope of net-basis taxation where they participate substantially in a market without a traditional physical presence. Source rules and withholding taxes are aimed at taxing cross-border payments as such, typically on a gross basis, where a payer, intermediary, or other collection mechanism can be identified. Anti-base-erosion rules are aimed at protecting the domestic corporate tax base against deductible outbound payments and avoidance structures that shift profits abroad or circumvent ordinary nexus thresholds. These instruments therefore address different margins of the same problem: who is taxable in the market, which payments can be taxed at source, and how the domestic base can be protected from erosion.

[27] HMRC data for the UK support this interpretation. The diverted profit tax appears to have operated primarily as a behavioral and settlement device rather than as a conventional revenue-raising tax. HMRC statistics report £735 million in net diverted profit tax receipts, alongside £4.436 billion in additional corporation tax from transfer-pricing and diverted profits taxes work and £2.662 billion in additional VAT associated with business restructurings, for a combined associated yield of about £7.8 billion (HMRC, 2023).

Even so, the same payment or service could, in some cases, fall within more than one of these categories, depending on domestic-law design and treaty constraints. For example, a deductible payment by a local affiliate to a foreign related party for cloud-computing support, AI and data services, digital advertising support, or other management and technical services may be subject to withholding taxes; it may also trigger anti-base-erosion rules if the charge is excessive, insufficiently substantiated, or routed to a low-tax jurisdiction. In some systems, the foreign supplier may be treated as having an expanded nexus or SEP-type taxable presence.

Similar overlap may arise where a foreign digital platform is supplying services remotely into a market without physical presence. Expanded nexus rules may seek to deem a taxable presence on the basis of sustained market interaction. If local business customers make payments to that platform, withholding taxes may also apply. The same underlying service may therefore be approached either through deemed net-basis taxation, gross-basis source taxation, or both. However, the domestic tax law instruments should be designed to avoid double taxation to the extent possible.

A further example arises where a multinational group structures third-party sales into a market through an affiliate or agent that performs significant local functions while avoiding formal PE status. Such a structure may be targeted by a deemed-PE rule or a diverted profits tax, while also raising source-based questions if related payments flow out of the jurisdiction. In this sense, the legal routes differ, but the underlying concern—a mismatch between economic participation and taxable income—may be the same.

The existence of overlap does not mean that these instruments collapse into one another. Their central logic remains somewhat distinct. Rather, it means that countries may layer different legal responses onto similar transactions or arrangements. That, in turn, increases the importance of careful instrument design, treaty coordination, and attention to the risk of cumulative or inconsistent taxation.

6.Treaty-Based Responses to Cross-Border Services

Tax treaties are both a constraint on, and a channel for, reform. They constrain unilateral action because they often continue to tie source-country taxation of business profits to traditional permanent-establishment thresholds and to limit withholding taxes on cross-border payments. They therefore represent a legal limitation that has often prevented countries from effectively extending taxation under domestic law to newer and emerging business models. They can be difficult and time-consuming to renegotiate bilaterally given that such renegotiations inevitably involve a rebalancing of taxing rights between partner countries. But treaties can also be a channel for reform because new model treaty provisions can create avenues for reallocation of taxing rights in ways that domestic law alone cannot reliably achieve due to enforcement and other challenges.

Recent discussions on the treatment of royalties in double tax treaties and the evolution of the United Nations Model Convention reflect precisely that tension. Article 12A, added in 2017, opened for source countries a limited right to tax certain technical-service fees without requiring a PE. Article 12B, added in 2021, extended treaty-based source taxation to automated digital services. In 2025, the UN Committee of Experts on International Cooperation in Tax Matters (“UN Committee”) agreed on a further provision, designated Article 12AA, reflecting a broader move toward payment-based source taxation of cross-border services, and agreed to amend Article 12 to expand the definition of royalties subject to withholding taxes. At the same time, these provisions do not all do the same work. Article 12A is aimed at a narrow class of business-to-business technical-service fees; Article 12B addresses automated digital services, including consumer-facing ones; Article 12AA moves toward broader source taxation of cross-border service fees; and amended Article 12 works not through a general services article, but through an expanded royalties article. However, in the absence of a strong global consensus or multilateral approach, the adoption of these newer provisions into bilateral treaties, and the implementation of similar approaches into domestic laws, remain effectively limited to 12A-type provisions, with Articles 12B and 12AA not yet reflected in treaties in force.

6.1 Article 12A: Fees for Technical Services

Article 12A was added to the UN Model Tax Convention in 2017 to address a gap in existing treaty architecture. Under that framework, income from cross-border services was generally dealt with under the business-profits article and under the independent-personal-services article. As a result, the source State could usually tax a non-resident service provider only if the provider had a permanent establishment, or a fixed base. That framework increasingly appeared inadequate for high-value services that could be supplied remotely while still generating deductible payments eroding the source-country tax base.

Article 12A responded by providing for a limited source-country taxing right over fees for technical services, even where the services are performed outside the source country. Its economic logic is straightforward: where a payment is deductible in the source country, that country has a plausible claim to tax at least part of the associated income.

Legally, Article 12A follows the familiar structure of other articles with distributive rules such as dividends, interest, and royalties. The residence State retains taxing rights, but the source State may also tax the payment up to a treaty-agreed cap where the recipient is the beneficial owner. The source rule is payment-based: the fees are treated as arising where the payer is resident, or where a PE or fixed base of the payer bears the fee. This shifts the focus from where the service is physically performed to where the payment reduces the taxable base. In that sense, Article 12A is more closely connected to deductibility and source-base protection than to physical presence.

Some treaties already contained provisions covering fees for technical services, but Article 12A was a step forward in establishing a model article, complete with Commentary, that could enhance the ability of developing countries to secure agreement on the article in bilateral negotiations. Substantively, however, Article 12A is narrow. It covers payments for managerial, technical, or consultancy services, while excluding other business services and payments by individuals for personal use. It therefore speaks mainly to B2B transactions and, in particular, to payments by business taxpayers that may be deducted in the source State. It does not naturally cover consumer-facing digital services, and it leaves significant room for classification disputes over what counts as "technical" or "consultancy" services. Economically, that narrowness limits both its reach and its neutrality. It protects the source base in a meaningful set of cases, but only for a subset of cross-border services, and gross-basis taxation can still overtax low-margin activities.

Viewed against the instruments discussed above, Article 12A sits closest to the withholding-tax instruments discussed in Section 5, thereby seeking to preserve some or all of those domestic law instruments. Like them, it uses payment and deductibility rather than physical presence as the key link to the source State. But unlike unilateral withholding taxes, it does so through a treaty rule that explicitly reallocates taxing rights and caps the source-country charge. It is also much narrower than DSTs, since it is aimed mainly at certain deductible B2B service payments rather than consumer-facing digital revenues.

6.2 Article 12B: Automated Digital Services

Article 12B was added to the UN Model in 2021 to address a different problem from Article 12A. Many highly digital services—such as online advertising, social media, search engines, digital content, cloud computing, and online gaming—can be supplied remotely with minimal human involvement, at scale, and often without any PE in the market jurisdiction. Those services were not naturally captured by Article 12A, and under traditional treaty rules would usually remain taxable only in the residence State unless a PE existed. Article 12B therefore permits source countries to tax income from automated digital services (ADS) without requiring a PE or a minimum period of physical presence.

Like Article 12A, Article 12B adopts a shared-taxing-rights structure. The source State may tax the income up to a negotiated cap, while the residence State also retains taxing rights. The source rule is again payment-based: income is treated as arising where the payer is resident or where a PE or fixed base of the payer bears the payment. The Commentary to the UN Model recommends a modest gross-basis rate, in the range of 3 to 4 percent, and the article includes an elective net-basis option intended to reduce the risk of excessive taxation for low-margin or loss-making providers.

Unlike Article 12A, Article 12B does not exclude services used by individuals for personal use, with a view to capturing B2C digital activity, though it can also reach standardized B2B digital services such as cloud computing and online advertising. Economically, its attraction lies in administrative simplicity and in its direct response to the absence of physical presence in digital markets. Its limits are equally clear. Because the source rule follows the payer rather than final consumption, it does not always track the location of the user or market in a fuller destination-based sense. Gross-basis taxation can also be blunt, and the elective net-basis regime can be complex in the absence of rules on the tax base, loss set-off, and related issues. In that respect, Article 12B is best understood as a targeted treaty-based response that seeks to preserve domestic taxing rights over remote automated services, not a general solution to the taxation of cross-border services.

Viewed against the instruments discussed above, Article 12B sits closer to expanded nexus rules and DSTs than Article 12A does, as it also targets remote engagement with consumers and users in a market without physical presence. But unlike unilateral digital PE rules, it does so through a treaty provision that reallocates taxing rights; and unlike DSTs, it remains within the treaty framework of shared taxing rights and offers an elective net-basis alternative. Its natural domain is automated, often consumer-facing digital services, though it can also reach some standardized B2B services.

While Article 12A is primarily about deductible technical-service fees, Article 12B is primarily about scalable, automated digital business models.

6.3 From Article 12A and Article 12B to Article 12AA

The movement from Article 12A to Article 12AA reflects dissatisfaction with both the narrowness of Article 12A and the targeted nature of Article 12B. Article 12A was confined to technical, managerial, and consultancy services, leaving out many routine, standardized, or outsourced business services. Article 12B, by contrast, was confined to automated digital services and therefore could not address the broader class of remotely supplied services that still raised source-country concerns. In 2025, the UN Committee agreed to designate a new cross-border services provision as Article 12AA by replacing Article 12A and Article 14 (though retaining Article 12B), signaling an effort to move beyond those narrower categories and beyond physical presence as the main proxy of taxable nexus in relation to cross-border services (UN, 2025).

The legal and economic logic of Article 12AA is broader than that of either predecessor. Rather than asking whether a payment is “technical” enough to fall within Article 12A, the new approach is to treat cross-border service fees more generally as a possible basis for shared taxing rights. The principal attraction, from a source-country perspective, is obvious: broader coverage, fewer classification disputes, and a closer alignment between deductible outbound payments and source-country taxation. Its economic logic is strongest for B2B transactions, especially where business payers deduct service fees in the source state. It can also apply to B2C transactions, as there is no express exclusion for services used by individuals for personal use (which may, in turn, practically require identifying suitable intermediaries to assist with tax collection on relevant digital service payments). But, together, that breadth also makes the provision more controversial.[28] The wider the range of services covered, the greater the risk that gross-basis taxation will overtax low-margin services, increase compliance costs, and intensify double-taxation concerns unless treaty rates are modest and credit relief functions effectively. Like Articles 12A and 12B, Article 12AA retains a shared-taxing-rights structure and a payment-based source rule, so its novelty lies less in treaty form than in the breadth of the services it brings within that framework.

The effects of Article 12AA remain uncertain. A recent ex ante scenario analysis by Oxford Economics, prepared for the International Chamber of Commerce, estimates that direct withholding-tax gains could be offset by indirect fiscal losses from reduced services trade, lower foreign direct investment, and weaker growth (Oxford Economics, 2026). That conclusion has been challenged by the Tax Justice Network, which argues that the analysis overstates the likely economic costs and understates the revenue-protection role of withholding taxes (Schultz et al., 2026). Both positions are necessarily forward-looking, and the debate underscores the need for further evidence and analysis on the revenue, trade, investment, and incidence effects of gross-basis source taxation of services.

[28] A minority of the members of the UN Committee of Experts on International Cooperation in Tax Matters did not agree with the policy justifications expanding the breath of the provision. These members regarded the expanded taxing jurisdiction on payments for services as an unjustified shift in the balance of taxation from the place where the services are provided to the residence of the payer. More detailed arguments—for and against—the expansion of the taxing jurisdiction embodied in Article 12AA can be found here.

Viewed against the instruments discussed above, Article 12AA moves treaty policy closest to a general source-based withholding model for cross-border services. Its economic logic is strongest for B2B transactions, especially where business payers deduct service fees in the source State, and it therefore overlaps most clearly with the withholding-tax instruments discussed in Section 5. Relative to SEP or digital-PE rules, it is less concerned with deeming a taxable presence and more concerned with taxing the payment itself. Relative to DSTs, it similarly weakens the role of physical presence, but remains within the treaty framework of shared taxing rights and applies to service fees more generally rather than to a selective set of digital business models. Conceptually, Article 12AA is the broad treaty-based services article: it goes beyond the narrow technical-service focus of Article 12A—thereby replacing both Article 12A and Article 14—, but does not displace Article 12B, which remains the more tailored provision for automated digital services.

6.4 Amended Article 12: Royalties

A common feature of existing double tax treaties is the inclusion of an exception to the permanent establishment rule in Articles 5 and 7—together with the arm's length principle under Article 9—allowing the source jurisdiction to levy a limited withholding tax on cross-border payments of royalties – reflected in Article 12 of the UN Model since its first publication in 1980. Where such a provision applies, the definition of "royalties" varies across treaties but generally includes, as a minimum, payments made in consideration for the use of, or the right to use, intellectual property, such as copyrights in literary, artistic or scientific works, patents, trademarks, designs or models, plans, and secret formulas or processes.

Traditionally, this treaty definition has been interpreted as not covering digital services, including payments for software access, cloud computing services, or the streaming of digital content, which are typically characterized as business profits falling under the permanent establishment rule.[29] However, this interpretation has become increasingly contested by some jurisdictions,[30] which have also expanded their domestic definition of royalties subject to withholding tax to include payments for the use of software and, in some cases, payments for the use of or access to digital content (see above Box 1). Following this trend, the UN Committee recently agreed to amend the definition of royalties in Article 12 of the UN Model Double Tax Convention to extend it to payments in consideration for the use of software, including payments for software that do not relate to the use of copyright in the software (UN, 2023). If implemented in double tax treaties, this provision would

[29] The traditional view is that payments for the use of computer software are generally made "primarily" to use a copy of the relevant software, rather than to use the copyright or patent embedded in the software, and therefore are not characterized as "royalties". Similarly, payments for the use of digital content on a platform are generally made "primarily" to acquire data transmitted through the internet, rather than to use any copyright embedded in the digital content (such as images, sounds or text) and therefore do not qualify as "royalties". This interpretation is reflected, for example, in paragraph 13 of the Commentary on Article 12 of the 2021 UN Model Tax Convention, which quotes paragraphs 12-17.4 of the Commentary on Article 12 of the 2017 OECD Model Tax Convention.

[30] Some countries consider that payments for the use of computer software are covered by the definition of "royalties" as soon as they entail the use of a copyright or patent (even if incidentally). Some countries take also the view that where the definition of "royalties" in a treaty covers payments made for the use of industrial, commercial or scientific equipment (as is the case in some double tax treaties), this extends to any letting of property such as computer software. These interpretations are reflected, for example, in paragraphs 15 and 16 of the Commentary on Article 12 of the 2021 UN Model Tax Convention.

preserve the application of withholding taxes in domestic law to a wide range of digital services depending on their legal characterization. Recent discussions within the Inclusive Framework on BEPS indicate that these issues are also under active consideration in that forum.

Amended Article 12 differs in kind from Articles 12A, 12B, and 12AA. Those provisions create or expand treaty rules for taxing services as such. By contrast, amended Article 12 works by broadening the royalties category, thereby bringing some software-related and digital payments within an already familiar withholding-tax article. Its significance therefore lies not in the creation of a new services article, but in the recharacterization of certain payments that might otherwise have been treated as business profits. In functional terms, it sits closest to source-based withholding on royalties, but with potentially important spillovers for the taxation of digitalized business models.

6.5 Broader UN Developments

These treaty developments are now feeding into a broader multilateral discussion. Under the UN Framework Convention on International Tax Cooperation, Workstream II has been tasked with developing an early protocol on the taxation of income derived from the provision of cross-border services in an increasingly digitalized and globalized economy, with draft text scheduled to go to the UN General Assembly in 2027. Recent discussion of the proposed UN services protocol frames the key design choice as one between gross-basis withholding taxes at source and a broader sales-based right to tax a share of multinational groups' net income, with the latter seeming more appropriate if the aim is to cover a wide range of cross-border services rather than a narrow subset of digital activities (Amaro and Picciotto, 2025). The January 2026 Co-Lead's Draft Options Paper makes clear that the debate extends across a wide spectrum of services, including intragroup technical and managerial payments, payments to unrelated parties for remote services, and automated digital services. It also shows that the core design choices remain contested: some participants favor gross-basis withholding taxes for administrative reasons, while others continue to prefer net-basis taxation more closely aligned with traditional income-tax principles.

Viewed together, the amended royalties article (Article 12), Articles 12A, 12B, and 12AA, and the emerging UN Framework Convention process point in the same direction. All reflect, in different ways, possible approaches for moving away from physical presence as the exclusive gateway to source taxation of services. Where physical presence is absent or insufficient, the question becomes whether other connecting factors—such as payment, use, deductibility, or sustained market interaction—are sufficient to justify source-country taxing rights. Whether these developments ultimately crystallize into a widely accepted multilateral regime remains uncertain. It is, however, already reshaping the treaty debate over cross-border services, and the design of domestic tax measures.

7. Bringing the Pieces Together

7.1 A Holistic Comparison

The preceding sections have examined the principal tax responses to cross-border services instrument by instrument. Table 1 brings those pieces together in a more holistic comparison, showing what problem each instrument addresses, what it taxes (or does not tax), the transactions to which it most naturally applies, and what remains unresolved. In doing so, it clarifies why these measures are neither fully interchangeable nor fully complementary, why, even taken together, they do not necessarily amount to a complete solution, and why the search for a more coherent reform remains necessary.

A simple example helps illustrate both the reach and the limits of the main instruments. Consider a non-resident provider supplying streaming or app-based services remotely to domestic consumers. VAT naturally applies to imported consumption here, since the core issue is that domestic consumption of services should bear the broad-based consumption tax whether the supplier is resident or non-resident. Depending on the legal design, the same activity may also fall within a DST or, in treaty settings, within the scope of Article 12B if the service is sufficiently automated and digital, with the aim of taxing income associated with the non-resident provider's participation in the domestic market. Economically, however, if the tax is passed forward into higher prices, the burden need not fall on that income. By contrast, withholding taxes, transfer-pricing rules, and other anti-base-erosion measures are generally not the primary instruments in this setting, because the transaction does not principally involve a deductible outbound business payment.

A different picture emerges if the service is online advertising sold by a foreign platform into the domestic market. If a domestic business purchases advertising from an unrelated foreign supplier, the transaction may still be brought within VAT through the reverse charge, though the economic burden is not expected to remain with the business purchaser, while the provider's gross revenues may also fall within a DST if the relevant market-based conditions are satisfied. Depending on domestic law and treaty constraints, the same income may further be approached through a digital PE or SEP-type rule or, in treaty settings, through provisions such as Article 12B. If the payment is instead made by a domestic affiliate to a related foreign group entity for digital advertising, marketing support, or similar services, the same transaction may again be relevant for VAT, but the core income-tax concern shifts toward base erosion through a deductible outbound payment. In that case, withholding taxes, transfer-pricing rules, and treaty provisions such as Article 12A or 12AA become more salient than DSTs.

The examples show that overlap among the instruments depends on the nature of the service and the structure of the transaction. They also show that incidence matters across these instruments, but that for the blunter measures, the link between legal design and intended objective is especially sensitive to who ultimately bears the tax economically.

7.2 Excess Burden of Gross-Basis Taxes on Cross-Border Services

An important consideration in evaluating gross-basis instruments—DSTs, withholding taxes on cross-border services, and denial-of-deduction rules—is that their economic distortions depend on more than the statutory tax rate. The magnitude of any distortion also depends on the share of business inputs brought within the tax base, the responsiveness of firms and consumers, and the extent of cascading when taxed services enter multiple stages of production (de Mooij, Hebous, and Keen, 2025). Economic incidence also matters. Even assuming, for the sake of argument, that a DST had a limited direct distortionary effect, it would fail to tax the market-related profit of the foreign provider if it were largely passed through to final consumers. Similarly, the effects of withholding taxes depend not only on statutory rates and creditability, but also on whether the affected payments reflect genuine cross-border services or profit-shifting arrangements. More evidence is needed on the incidence of these instruments, particularly withholding taxes, and on the share of related-party and non-related-party payments subject to withholding taxes or denial-of-deduction rules. These considerations reinforce the broader point that instruments may differ substantially in their economic effects.

Table 1. Economic Logic, Scope, and Limits of Tax Instruments for Cross-Border Services

Instrument	Core problem	Immediate tax question	Typical scope	Economic logic	Main unresolved issue
VAT on imported services	Remote delivery without local presence	How should domestic consumption of imported services be taxed?	Broad-based; most natural for B2C final consumption, but also relevant to B2B imports where reverse charge is needed; not limited by service type	Taxes domestic consumption under the destination principle and preserves neutrality between domestic and foreign suppliers	Solves the consumption-tax problem, but does not tax the income of the non-resident supplier
DSTs and similar gross-basis levies	Remote delivery without local presence	How can a market country capture market-linked revenue without requiring physical presence?	Typically limited to specified digital services; often reaches both B2C and B2B revenues; usually not framed around related-party status	Captures some market-linked revenue where ordinary income-tax rules do not reach the activity	Gross-basis and selective; may fall partly on domestic consumers and business users; creates ring-fencing and non-neutrality
Expanded nexus rules (digital PE / SEP/ service PE)	Remote delivery without local presence	How can a jurisdiction tax business profits from substantial market participation without traditional physical presence?	Potentially broad across services, but strongest for remotely supplied business and digital services; may apply to B2B and B2C; not primarily defined by related-party status	Seeks to bring the non-resident enterprise within the ordinary income-tax net by creating taxable presence	Profit attribution remains difficult; nexus can be created without meaningful profit following
Article 12B	Remote delivery without local presence	How can a treaty allow source-country taxation of automated digital-service income without a PE?	Limited to automated digital services; reaches B2C as well as some standardized B2B services; not limited to related parties	Creates a treaty-based source taxing right over a defined class of digital-service income without requiring PE	Narrow to ADS; payment-based source rule does not fully track destination; treaty uptake remains uncertain
Withholding taxes on outbound payments	Deductible cross-border payments and profit shifting	How can the source country tax or monitor outbound service payments that erode the base?	Strongest in B2B settings; often relevant to both related-party and unrelated-party payments; most natural where there is an identifiable payer	Taxes the outbound payment at source and can curb base-eroding flows	Crude gross-basis taxation; may overtax low-margin or arm's-length payments; broader incidence remains uncertain

Instrument	Core problem	Immediate tax question	Typical scope	Economic logic	Main unresolved issue
Deduction-limitation and anti-base-erosion rules	Deductible cross-border payments and profit shifting	How can the domestic base be protected against mispricing, low-tax routing, or insufficient substance?	Mostly B2B and most often related-party; strongest for service fees, royalties, management charges, and intangible-related payments	Protects the domestic tax base by denying or limiting deductions or penalizing avoidance structures	Can catch genuine business payments, create complexity and uncertainty, and overlap with other instruments
Article 12A	Cross-border service fees in the treaty setting	How can treaties preserve source taxation of technical-service fees without requiring a PE?	Narrow class of managerial, technical, and consultancy services; mainly B2B; not limited to related parties, though economically strongest where payments are deductible	Treaty-based payment rule aimed at source taxation of technical-service fees	Narrow service definition; classification disputes; little relevance to consumer-facing digital activity
Article 12AA	Remote services and deductible service fees in the treaty setting	How can treaties preserve source taxation of cross-border service fees more broadly?	Broader than 12A; strongest for B2B service payments; can extend beyond related-party cases and beyond technical services narrowly defined	Broadens payment-based source taxation of service fees within the treaty framework	Wider scope increases concerns about overbreadth, compliance costs, and gross-basis overtaxation
Amended Article 12	Software-related and analogous digital payments	How can source taxation be preserved through the royalties route?	Focused on software-related and similar payments; not a general services rule; can apply in both B2B and some wider payment settings depending on characterization	Broadens the royalties category so that some payments otherwise treated as business profits fall within source-country withholding	Works by recharacterization, not by creating a general services rule; boundary issues remain important
Customs duties on electronic transmissions	Digital delivery of products, especially those that were previously traded as physical imports	Can imported digital products or transmissions be taxed at the border rather than through VAT or income-tax rules?	Narrow and uncertain; potentially relevant to electronically transmitted digital products and content, but not a general instrument for taxing cross-border services	Seeks to tax digital imports through the customs channel by analogy to physical imports, rather than through domestic consumption taxation or income taxation	Narrow base, valuation, rules of origin, and classification difficulties, uncertainty over the unsettled scope of “electronic transmissions”, tension with trade commitments, retaliation risk, and generally weaker revenue and efficiency properties than broad-based VAT

Source: Authors.

8. Concluding Remarks

At first glance, the taxation of cross-border services can look like a morass: an expanding mix of measures dealing with imported digital consumption, remote market participation (or, in tax jargon, taxable presence), outbound payments for services, profit shifting, and treaty-based reallocations of taxing rights. Yet these measures are all directed, in different ways, at the same underlying problem of who taxes what, on what basis, and subject to what constraints in an increasingly digitalized and service-intensive world. The complexity is not merely accidental, nor are these measures interchangeable. Some perform distinct functions, operate on different legal margins, and respond to different manifestations of the same underlying tension, while others overlap at the margins. Their coexistence reflects a deeper fact: they are all attempts to adapt an older framework to a highly digitalized economy in which services, intangibles, and remote participation play a far greater role than before, without waiting for a grand multilateral agreement.

Against this backdrop, the taxation of cross-border services has engaged trade economists, public finance economists, lawyers, accountants, practitioners, and policymakers, often proceeding in parallel rather than in full analytical alignment. One aim of this paper has been to draw those various strands together into a more coherent account of the underlying problem and of the diverse, overlapping, and sometimes inconsistent responses it has produced, and to provide an overview of that evolving landscape.

The empirical regularities presented here show that changes in the composition and organization of international trade, especially the rise of digital and remotely supplied services, have put sustained pressure on tax systems to rethink the way forward. For broad-based consumption taxation, the core issue is conceptually straightforward but practically important: countries need to update VAT legislation and administration so that imported digital supplies are effectively brought within the tax net. That alone, however, does not resolve the separate question of how profits associated with domestic consumption, users, and data should be taxed. Trade statistics also show that digitally delivered *business* services are growing rapidly, reinforcing the importance of cross-border service flows for business income taxation.

In income taxation, physical presence is a weaker anchor for taxing profits than it once was. The responses examined in this paper pursue different avenues toward similar objectives. Some seek to bring remote participation within the tax net by expanding nexus beyond the traditional PE threshold. Others, such as DSTs, impose gross-basis taxes on selected digital revenues as a relatively blunt way of capturing some income associated with a market without requiring physical presence or payment from that jurisdiction. But the evidence presented here suggests that DSTs also fall on domestic consumers and business users, thereby at least partly undermining their intended purpose, alongside the ring-fencing challenges and economic distortions they create.

By contrast, withholding taxes on outbound business payments and some deduction-limitation rules are aimed at protecting the income-tax base against related-party mispricing and base-eroding outbound payments. The available evidence suggests that such measures can curb base-eroding payments and associated profit shifting, but much remains to be learned about their broader incidence on prices, wages, investment, and real economic activity, including the extent to which the burden falls on the non-resident recipient. In many cases, these instruments also extend beyond related-party transactions and function as a way of taxing non-resident income without physical presence, though in a cruder and more payment-focused manner than expanded nexus rules.

The treaty developments reflected in Articles 12A, 12B, 12AA, and the amended royalties article show that these pressures are now being worked through the UN treaty framework as well. In different ways, they relax the traditional dependence of source taxation on physical presence and seek to create alternative connecting factors based on payment, deductibility, use, or digital market engagement. At the same time, they do not all do the same work. Article 12A is aimed at a narrow class of technical-service fees; Article 12B addresses automated digital services; Article 12AA moves toward broader source taxation of cross-border service fees; and amended Article 12 proceeds through an expanded royalties article rather than a general services rule. Whether these developments will materially reshape the existing treaty network remains uncertain, but they already reflect a significant shift in the terms of the debate, including developing countries' dissatisfaction with existing arrangements. This is reflected in the choice of taxation of services as one of the two initial Protocols in the work to develop the UN Framework Convention.

What ties these developments together is that they are largely layered solutions. They patch, stretch, and rebalance the existing framework, but do not fundamentally replace it. More far-reaching reforms would address these tensions more fundamentally by introducing a new architecture of international business taxation. One such alternative is formulary apportionment of the globally consolidated profits of the multinational enterprise, in particular by reference to sales by destination. Pillar One can be understood as a more limited attempt to move in that direction while being layered onto the existing system. Another is a destination-based cash-flow tax, akin in some respects to a VAT but allowing deductions for payroll. Both systems have been studied extensively in the literature (for example, Devereux et al., 2021), but they appear to be a remote possibility for now.

For the time being, then, in the absence of a meaningful and coherent multilateral reform, the taxation of cross-border services is likely to continue evolving through partial, overlapping, and imperfect adaptations layered onto the existing system rather than through a single, clean redesign. The size of the distortions created by gross-basis instruments depends not only on statutory rates, but also on the implied effective wedge, pass-through or creditability, behavioral responses and input substitution, and whether payments reflect real services or profit shifting. Yet the comparative analysis here points in a clear direction: broader reliance on destination-based taxation can address many of the core problems raised by digitalized cross-border services more effectively than narrower, more distortionary alternatives.

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Annex I – Digital Trade Provisions in New U.S. Agreements on Reciprocal Trade

Agreements on Reciprocal Trade are a new type of U.S. trade agreement introduced in 2025 which co-exist with earlier Free Trade Agreements and other treaties. Agreements on reciprocal trade are novel in several respects. Most notably, they determine the level of the exceptional tariffs that the United States applied in 2025 under emergency authority to the trading partner while the partner liberalizes part of its own tariff schedules or other market-access restrictions—such as tariff rate quotas—on a preferential basis with respect to the United States. The agreements also contain wide-ranging provisions on non-tariff barriers, services, digital trade, economic security, investment, purchasing commitments, and other issue areas. The table below summarizes their content as regards digital services as of May 2026.

Table 2. Coverage of Digital Services in Finalized U.S. Agreements on Reciprocal Trade (ARTs)

Trading partner (in order of agreement)	*Services Trade Provisions*	*Digital Trade Provisions*	*Commitment to refrain from Digital Services Taxes (DSTs) that discriminate against US companies in law or in fact*	*Commitment to Refrain from imposing Customs Duties on Digital Trade*	*Commitment to Support Permanent WTO Moratorium on Customs Duties on Digital Trade*	*Commitment to Implement WTO Agreement on Services Domestic Regulation (SDR)*
Malaysia	✓	✓	✓	✓	✓	
Cambodia	✓	✓	✓	✓	✓	
El Salvador	✓	✓	✓	✓	✓	(SDR member)
Guatemala	✓	✓	✓	✓	✓	✓
Argentina	✓	✓	✓	✓	✓	(SDR member)
Bangladesh	✓	✓	✓	✓	✓	✓
Taiwan POC	✓	✓	✓	✓	✓	(SDR member)
Indonesia	✓	✓	✓	✓	✓	✓
Ecuador	✓	✓	✓	✓	✓	✓ (SDR member)

Source: Office of the United States Trade Representative.
Note: Includes agreements which have been finalized as of May 2026.

Annex II – Key Design Features of DSTs

This annex provides a comparative overview of the legislation and administrative practice in nine selected jurisdictions, summarized in Table 3.

Table 3. Key Features of DSTs

Country	Introduction	Status	Rate	Scope Thresholds	Tax Base
Austria	January, 2020	In force	5%	EUR 750 million global revenue, and EUR 25 million domestic revenue	Gross revenues from online advertising services.
Canada	June, 2024	Stalled in June, 2024	3%	EUR 750 million global revenue, and CAD 20 million domestic revenue	Gross revenues from online advertising services, online intermediation services and transfer of user data.
France	January, 2019	In force	3%	EUR 750 million global revenue, and EUR 25 million domestic revenue	Gross revenues from online advertising services and online intermediation services.
India	April, 2020	Repealed in August, 2024	2%	EUR 220,000 domestic revenue (NB: limited to non-resident suppliers)	Gross revenues from all digital services and the sale of goods by online platforms.
Italy	January, 2020	In force	3%	EUR 750 million global revenue, and EUR 5.5 million domestic revenue	Gross revenues from online advertising services, online intermediation services and transfer of user data.
Nepal	July, 2022	In force	2%	EUR 12,000 domestic revenue (NB: limited to non-resident suppliers)	Gross revenues from all digital services.
Spain	January, 2021	In force	3%	EUR 750 million global revenue, and EUR 3 million domestic revenue	Gross revenues from online advertising services, online intermediation services and transfer of user data.
Türkiye	March, 2020	In force	5%*	EUR 750 million global revenue, and EUR 375,400 domestic revenue	Gross revenues from online advertising services, online intermediation services, transfer of user data, online streaming services, and certain cloud-computing services.
United Kingdom	April, 2020	In force	2%	GBP 500 million global revenue, and GBP 25 million domestic revenue	Gross revenues from online advertising services and online intermediation services.

* Rate reduced to 2.5% as from January 2027.
Source: Compiled by the authors.

While there are variations across jurisdictions, the comparison reveals a high degree of convergence in the core features of DSTs.[1] Overall, as set out in the paper, DSTs are best understood as sector-specific turnover taxes, distinct from both income taxes, which are based on profits, and traditional consumption taxes, which generally relieve taxation of intermediate inputs. Across the jurisdictions reviewed, five common design features stand out. DSTs are typically: (i) low-rate taxes on turnover; (ii) targeted at a narrowly defined subset of digital services; (iii) relying on destination-based revenue sourcing; (iv) restricted to large multinational enterprise (MNE) groups with a significant domestic customer base; and (v) assessed and paid directly by the MNE group supplying the taxable services. Noteworthy, several DSTs were also introduced as 'interim' or 'temporary' measures pending a multilateral solution.[2]

Low-rate tax on turnover. All DSTs reviewed are taxes on turnover, levied on gross revenue rather than net income. In particular, they apply to revenue derived from both B2C and B2B transactions. They do not provide opt-outs or relief for loss-making businesses, nor do they allow offsets against corporate taxes, and they are imposed on top of existing taxes, including VAT.[3] For that reason, they are generally regarded as a deductible expense for income tax purposes, and fall outside the scope of double tax treaties.[4] They also do not provide credits or refunds for DST paid at earlier stages of the production or distribution chain, thereby taxing business inputs and creating cascading effects. Finally, they are reported and paid periodically, most often annually, rather than assessed and reported on a transaction-by-transaction basis.

Targeted at a sub-set of digital services. Another common feature of DSTs is their narrow scope. They generally apply only to revenue derived from a limited subset of specifically defined digital services (hereafter, "taxable services"), effectively making them sectoral turnover taxes relevant only for certain business models within the information and communication technology sector. Despite some variation in the precise definition of taxable services (Table 3), two categories of digital services are consistently captured across the DSTs reviewed:

- **Online advertising services**, usually defined as advertising displayed on a digital interface and targeted at a specific audience using data collected from users' online interactions. For these transactions, the tax base includes all revenue earned by the publisher—such as a social media

[1] This convergence may partly reflect prior discussion of key design features of DSTs at the EU and OECD/G20 Inclusive Framework levels before jurisdictions began introducing such measures unilaterally. In particular, the European Commission issued in March 2018 a fully developed proposal for a common DST within the European Union (COM/2018/0148 final), which was ultimately not adopted. That proposal drew on earlier discussions in the Inclusive Framework on BEPS (OECD, 2018).

[2] This, however, does not constitute per se a legal design feature of those instruments, as the commitment to repeal the tax once a global solution is in place has typically been reflected in legislative motives and explanatory memoranda, but not in legally binding provisions (for example, sunset clauses).

[3] One notable variation exists in the United Kingdom, where the legislation includes an elective "safe harbour" mechanism allowing taxpayers to reduce their effective tax rate based on the operating margin of the relevant digital services. In practice, this permits businesses with low operating margins or negative margins to significantly reduce or eliminate their DST liability.

[4] To mitigate double taxation, some jurisdictions, such as the UK, , exclude 50 percent of the revenue derived from taxable services that are also subject to a DST in another jurisdiction.

platform, search engine, or online media outlet—from displaying the advertisement online, regardless of whether the payment is made directly by the advertiser or through intermediaries.

- **Online intermediation services**, generally referring to digital platforms or marketplaces that facilitate interactions or transactions between different categories of users.[5] For these transactions, the tax base is the revenue earned by the intermediary (for example, a commission fee), regardless of which side of the transaction is charged, but does not include the value of the goods or services exchanged through the platform.[6]

Destination-based revenue sourcing. DSTs aim to tax the domestic use or consumption of taxable services, irrespective of where the supplier—or even the paying customer—is located or resident. Conversely, services used or consumed abroad (that is, exports) are excluded from the tax base. This represents a clear departure from traditional income-tax rules, under which, as discussed in the paper, taxing rights depend heavily on physical presence. In practice, DSTs therefore rely on revenue-sourcing rules based on the "place of use" or "final consumption" of the service, supported by proxies and indicators specific to each category of taxable service. For online advertising, revenue is typically sourced by reference to the location of the user viewing the advertisement ("eyeballs"), using indicators such as IP addresses, geolocation data, or user profile information. For online intermediation services, sourcing generally depends on the location of either the buyer or the seller involved in the intermediated transaction, determined through indicators that vary with the characteristics of the facilitated transaction—for example, the delivery address for goods or the location of the underlying property for short-term rentals. Where the DST also applies to other digital services, such as streaming or cloud computing, sourcing rules are often simplified by relying on the location of the paying customer; in such cases, no attempt is made to "look through" business customers where the service is acquired as an intermediate input. Some jurisdictions provide detailed rules specifying which indicators should be used and in what order, whereas others adopt more flexible approaches and require taxpayers to apply reasonable methodologies to determine the relevant market location. Some jurisdictions also allow the use of formulas or allocation keys where reliable transactional data are unavailable, for example by reference to the number of domestic users of a platform relative to its global users. The complexity of these rules means that identifying the relevant market cannot realistically be done on a transaction-by-transaction basis. Instead, taxpayers typically develop group-wide systems and internal methodologies to allocate revenue across jurisdictions, often relying on sophisticated data management tools and analytics to administer the different proxies.

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[5] Jurisdictions can differ in how taxable services are legally defined. For example, in the United Kingdom, the taxable services for in-scope taxpayers, consists of in-scope revenues (revenues derived from UK users above £25 million) in respect of the provision of a social media service, an internet search engine, or an online market place, including the carrying on of any associated online advertising service in respect of the provision of each service category.

[6] Some jurisdictions, such as Canada exclude half of the revenue earned by the intermediary where only one of the parties to the intermediated transaction is located in the taxing jurisdiction. In contrast, the Equalisation Levy in India applied to the entire revenue of the underlying transaction (that is, the full value of the good or service being facilitated), rather than to the revenue earned by the intermediary.

Box A1. The Destination Principle for DSTs and VAT: The Example of Online Advertising

While DSTs and VAT systems often rely on similar proxies to identify the market for digital services, for example IP addresses, they apply destination principles in different ways in the context of online advertising services. Under VAT, the place of taxation is usually determined by reference to the location of the customer purchasing the advertising service, typically a business. By contrast, DSTs source such revenue by reference to the location of the users targeted by the advertisement, that is, the "audience" or "eyeballs," who may be located in a different jurisdiction.

This difference can be illustrated as follows. Consider a business located in country A purchasing online advertising services from a platform located in country B, with the advertisement targeted at users located in country C. For VAT purposes, the service is taxed in country A, where the business customer is typically required to apply a reverse-charge mechanism. For DST purposes, the revenue from the service is taxed in country C, where the targeted users are located.

This divergence reflects the different design and scope of the two taxes. VAT has a broad scope and is designed to apply throughout the supply chain with input tax credits, including the downstream activities of the business customer in country A, which may ultimately give rise to final sales taxed in country C. By contrast, DSTs have a narrow scope limited to the advertising service purchased by the business customer in country A, without regard to the downstream supply chain and without any mechanism to relieve cascading effects.

Restricted to large MNEs with a significant domestic customer base. Most DSTs reviewed further restrict their scope through two cumulative revenue thresholds, generally applied at the group level rather than entity by entity. These thresholds ensure that the tax applies only to large MNE groups with a significant market presence.

The first threshold concerns the global revenue of the MNE group derived from taxable services. In most jurisdictions – that is, Austria, Canada, France, Italy, Spain, and Türkiye – this threshold is aligned with the country-by-country reporting threshold of EUR 750 million.[7] The United Kingdom instead applies a threshold of GBP 500 million. By contrast, India and Nepal use no global threshold, but have a scope limited to non-residents. Where applicable, these thresholds ensure that the tax applies only to very large firms expected to possess the administrative capacity required to comply with DST obligations, including the development of complex revenue-sourcing systems. At the same time, this design choice further narrows down the population of affected taxpayers, potentially to a limited number of foreign MNEs, in which case it reinforces the "ring-fencing" effect and related trade issues.

The second threshold relates to domestic revenue derived from taxable services. DST liability arises only when the revenue sourced in the taxing jurisdiction exceeds a specified annual amount. For example, the domestic threshold is EUR 25 million in France, GBP 25 million in the United Kingdom,

[7] Canada's DST threshold includes all revenues of the MNE group, not only revenues from taxable services.

CAD 20 million in Canada, EUR 5.5 million in Italy, EUR 3 million in Spain, and approximately EUR 375,400, EUR 220,000 and EUR 12,000 in Türkiye, India and Nepal, respectively.[8]

Taken together, these thresholds usually limit the effective application of DSTs to a very small number of firms. For example, fewer than twenty MNE groups were subject to the UK DST in 2024, and it was estimated that thirty-seven MNEs were in scope of the French DST in 2021.

Paid directly by the MNE group. All DSTs reviewed are self-assessed and paid directly by the MNE group supplying the taxable services. Liability and collection rest therefore entirely with the supplier, whether resident or non-resident, which must calculate, declare, and pay the tax. Filing obligations are typically annual, with some jurisdictions requiring periodic installments. Compliance is usually streamlined by allowing a single entity within the MNE group to fulfil all DST obligations on behalf of the group.[9] Because DSTs may apply to non-residents with little or no physical presence, and can involve group-level information (for example, global revenue threshold), compliance procedures typically include:

- fully digitalized registration, filing, and payment procedures, even if the legislation requires a local tax representative for MNEs with no existing local tax presence for corporate income tax or VAT purposes;
- payment mechanisms adapted to non-residents, including clear foreign exchange rules;
- the possibility for an MNE group to designate a single entity to file and pay on behalf of all group entities with taxable services (typically, a local subsidiary); and
- joint liability rules covering all locally based entities of the MNE group to secure collection.

DSTs therefore often require dedicated administrative and compliance infrastructure, even though aspects of existing VAT regimes for non-resident suppliers of services, such as vendor-collection systems, can sometimes be leveraged for this purpose. Experience to date suggests that voluntary compliance levels are generally high, at least for jurisdictions with high global revenue thresholds, reflecting in those cases the limited number of affected taxpayers and the fact that these taxpayers have significant reputational exposure and established compliance processes. To reduce non-compliance risks, some DST legislations have also introduced new reporting obligations on third parties (for example, financial intermediaries).

[8] One notable variation is that Nepal and India apply their domestic revenue threshold entity-by-entity. It is also worth noting that Canada and the United Kingdom use their local threshold as an allowance that exempts domestic revenue below those amounts from any DST liability.

[9] This simplification does not apply in India and Nepal.

PUBLICATIONS

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