

Taxing the Matchmakers: How Digital Services Taxes Cascade Through Online Commerce

Jul. 2026

Alan Cole Senior Economist

Key Findings

- Digital services taxes (DSTs) are gross-based taxes, which can pyramid through supply chains and cause disproportionate harm to low-margin businesses and to value chains with multiple participants; the same underlying commerce may be included in multiple firms' tax bases.
- A low statutory tax rate can become a high effective tax rate on income. In a stylized travel example, a 3 percent DST becomes roughly a 39 percent tax on combined pre-DST income because it applies to gross receipts without deducting business-to-business payments to other covered firms.
- DSTs penalize the specialization needed to make the economy more productive. Small sellers cannot build a search engine, booking portal, or advertising exchange, and indeed, these internet-based businesses are typically distinct from each other. Specialization in internet services makes small sellers easier to find.
- A destination-based value-added tax (VAT) or goods and services tax (GST) is a better instrument for taxing digital consumption by avoiding cascading. Recent experience shows that governments can tax digital consumption with a better structure than DSTs.

Introduction

Imagine a traveler is planning a relaxing vacation away in the south of France. She wants a small place with character rather than a generic hotel. She searches online intermittently over the course of a few days and ultimately finds her match through an advertisement. It is a three-room B&B near Annecy with blue shutters, a breakfast table by the window, and a host who makes apricot jam from trees behind the house.

The match is good for traveler and B&B owner alike; the traveler is unfamiliar with the area, and the owner is good at hospitality, not global marketing. Before the internet, the owner might have depended on guidebooks or repeat guests, but now she can reach a traveler who is looking for exactly what she offers.

Underneath that ordinary booking is a stack of specialized digital services, an infrastructure that lets small suppliers compete outside their immediate neighborhoods in industries like travel or artisanal goods.

Digital services taxes (DSTs) are a significant threat to that stack of services. These taxes are often presented as taxes on a few large digital companies. But in practice, they tax the process that helps buyers and sellers find each other. Worse, because DSTs are generally imposed on gross receipts rather than profits, and because they do not provide credits for taxes paid earlier in the digital supply chain, they can compound as payments move from one specialized firm to another.

The result is tax pyramiding.¹ A 3 percent tax on gross receipts can become a much larger tax measured against income. It can also favor vertical integration over specialization, penalizing the efficient division of labor.

Digital services should be subject to a single layer of ordinary destination-based taxation, in parallel with any other kind of consumption. But they should not be subject to additional layers, especially in this duplicative and arbitrary manner. Governments have better tools available—particularly destination-based value-added tax (VAT) or goods and services tax (GST) systems, which tax final consumption while allowing businesses to recover tax paid on inputs.

How a DST Works

A variety of countries have digital services taxes, but France is one of the more significant examples, as it is among the world's largest economies. The French digital services tax applies to certain services supplied by large firms in the digital sector.² The main categories are digital intermediation and targeted advertising. Digital intermediation means making available a digital interface that allows users to contact and interact with one another. Targeted advertising includes digital advertising services that use user data to target messages or help place targeted ads.

¹ Tax Foundation, "Tax Pyramiding," TaxEDU Glossary, <https://www.taxfoundation.org/taxedu/glossary/tax-pyramiding/>.

² Direction générale des Finances publiques, «Taxe sur certains services fournis par les grandes entreprises du secteur numérique (TSN)» [Tax on Certain Services Provided by Large Digital-Sector Enterprises], *Bulletin Officiel des Finances Publiques*, Mar. 23, 2020, <https://bofip.impots.gouv.fr/doctrine/BOI-TCA-TSN>.

The tax does not apply to every digital service or every firm. France applies thresholds. Covered services are taxable only when the relevant group exceeds both a worldwide taxable-services threshold of €750 million and a France-attributable taxable-services threshold of €25 million. The tax is aimed at large digital intermediaries and advertising platforms.

France calculates the DST as the taxable sums received (that is, revenue, not profit) for a covered service, multiplied by a France-presence coefficient, multiplied by the 3 percent tax rate.

France's rules also make the territorial connection depend on user location. For targeted advertising, the French connection can arise when an advertisement is placed on an interface accessed through a terminal located in France. For marketplace-style transactions, the French connection can arise when either the seller or the buyer is located in France.

Payment processors are not treated as DST intermediaries in these examples. French guidance excludes certain interfaces whose principal purpose is to provide payment services, and it distinguishes a marketplace that uses payment services from a payment interface whose main purpose is payment. However, much of the rest of the stack of internet services that unite consumer and producer falls within the DST base.

The French design is not the only design for a DST,³ but it is an illustrative example; the same insights that follow from the study of the French DST will more often than not apply in other DST countries.

Summarizing Tax Pyramiding in DSTs

The distinction between revenue and profit matters a great deal. First, because the former—the base of the DST—greatly exceeds the latter, making it a much more aggressive tax per percentage point than a tax on profits. Second, because the proportions of profit to revenue—that is, firm margins—can vary significantly from firm to firm, so a flat percentage of profits is not flat as a percentage of revenue. Third, because parts of a multi-firm chain end up counted twice or more, because an intermediate supplier's revenues are embedded in the costs and taxable revenues of producers later in a value chain. In a sense, all three of these points are actually variations on the same observation: a producer's take-home is revenue minus costs, where costs are often other producers.

A gross revenue tax base ultimately creates an unequal tax burden that is not neutral across economic activities. Economists have long understood this relationship and advised against the taxation of intermediate inputs.⁴

Net-income taxes largely avoid this problem simply by definition. Other taxes that may superficially appear to be gross-based, like VATs or GSTs, actually guard carefully against double taxation through invoice-crediting.

³ Cristina Enache, "Digital Services Taxes in Europe, 2026," Tax Foundation, May 4, 2026, <https://www.taxfoundation.org/data/all/eu/digital-services-taxes-europe/>.

⁴ Peter A. Diamond and James A. Mirrlees, "Optimal Taxation and Public Production I: Production Efficiency," *American Economic Review* 61:1 (March 1971): 8-27, <https://www.jstor.org/stable/1910538>.

The safeguards on DSTs are limited or non-existent.

Deductibility for corporate income tax purposes (as France offers) or even creditability against corporate income taxes (which is not always offered) are generally not sufficient to relieve the double-taxation issues in a DST.

If the affected firms are substantively outside DST-imposing countries (often in the US) the corporate income tax liability in the DST-imposing country is limited—the corporate income tax is keyed on location of production and on citizenship, not on customer location. Principled suggestions for destination-based systems do exist, but only in theory, not in practice. Indeed, DST-imposing countries tend to use source-based income taxation for their own exporters while reserving the destination-based DST structure for industries where they are more likely to be net importers, resolving the question of source or destination base in the more convenient direction.

And in the French case, a deduction is not a credit. For example, France's normal corporate income tax rate is 25 percent. If a firm can fully deduct €1 of DST against French corporate income tax, the deduction is worth at most €0.25. The firm still bears the remaining €0.75.

For US taxpayers, DSTs generally do not qualify as creditable foreign income taxes.⁵ (This is not surprising, given their base is not income and the US would not want to encourage their proliferation.) And among different DST-imposing countries, or even within DST-imposing countries, there is no guarantee that the same economic value will not be taxed multiple times.

To show how these observations work in practice, we will consider two illustrative examples below.

DSTs in Travel

Return to the traveler and the B&B near Annecy. Imagine the traveler first searches and clicks some advertising that strikes her fancy, but she is not ready to book yet. Then, she later sees an ad for the perfect B&B choice while browsing a social media website and decides to book.

This is actually the hidden work of an online travel agency (OTA), which does much of the business for the B&B. It takes €200 in payment for connecting the traveler to a valuable extended stay. The OTA is not keeping all of that amount. It has costs of its own. And some of these are other digital services it uses to help generate bookings. In this case, it pays €25 to a search engine for advertising—the first results the customer sees. Then it also pays €20 to a retargeting agency to reach potential travelers who browse but do not book. The retargeting agency then pays €15 to a social media platform for ad inventory. And then, on this second viewing, the traveler books.

5 Internal Revenue Service, Notice 2023-55, 2023-32 I.R.B. 427, Jul. 21, 2023, https://www.irs.gov/irb/2023-32_IRB#NOT-2023-55.

Table 1. How Gross-Base Taxation Stacks in the Travel Industry

Firm	Gross Revenue	Paid to In-DST-Scope Firms	Other Costs	Net Income Pre-DST	DST Paid	DST as % of Pre-Tax Net Income
Online Travel Agency	€200.00	€45.00	€145.00	€10.00	€6.00	60.0%
Search Engine	€25.00	€0.00	€20.00	€5.00	€0.75	15.0%
Retargeting Agency	€20.00	€15.00	€4.00	€1.00	€0.60	60.0%
Social Media Platform	€15.00	€0.00	€11.25	€3.75	€0.45	12.0%
Total	€260.00	€60.00	€180.25	€19.75	€7.80	39.5%

Source: Author's calculations.

The statutory rate is 3 percent. But the tax burden is not 3 percent of income. Across the covered digital firms, the DST is €7.80 on €19.75 of pre-DST income. That is roughly 39 percent of income.

The OTA's numbers show the problem clearly. It receives €200 of revenue, but it has only €10 of pre-DST income after buying advertising, retargeting, labor, software, and other services. A 3 percent tax on its €200 of gross revenue is €6. That is 60 percent of the OTA's pre-tax income.

The retargeting agency faces a similar problem. It receives €20 from the OTA, but pays €15 to the social media platform. After other costs, it has €1 of pre-DST income. A 3 percent tax on €20 is €0.60, or 60 percent of income.

This happens because the same economic activity is counted repeatedly. One could say that the social media platform's revenue is part of the costs, and implicit in the retargeting agency's revenue (which passes the costs on). But there is an even simpler way of observing the problem: the gross revenue of in-scope firms totals to €260 even though the whole economic activity captured here is worth just €200 in final services. This is because €60—the amount paid to in-DST-scope firms by other in-DST-scope firms—gets double-counted twice.

This example may also be conservative in cross-border cases. In some transactions, OTA revenue can potentially be exposed to DST in both the traveler's country and the supplier's country. If both countries assert taxing rights over the same booking revenue, the effective tax rate on income can be higher than the 39 percent shown here. While DST countries do attempt to key the taxing rights to location, they can be aggressive, working from either the consumer side or the producer side, resulting in double layers when customer and seller are in different DST countries.⁶

⁶ One example, shown by PwC Netherlands, illustrates a double DST burden on a French-Italian transaction. On the French localization rule for digital intermediation services, see Direction générale des Finances publiques, "Taxe sur certains services fournis par les grandes entreprises du secteur numérique – Champ d'application – Définition des services taxables – Services d'intermédiation numérique," *Bulletin Officiel des Finances Publiques*, Jun. 21, 2023, <https://bofip.impots.gouv.fr/bofip/12197-PGPhtml/identifiant=BOI-TCA-TSN-10-10-20-20230621>, and Code général des impôts, art. 299 (France); on the Italian rule, Legge 30 dicembre 2018, n. 145, art. 1, commi 35–50 (Italy); and, for the combined double-taxation example, PwC Netherlands, "Digital Services Tax," last updated Aug. 18, 2025, <https://www.pwc.nl/en/services/tax/taxation-of-the-digital-economy/digital-services-tax.html>. Note that cross-border digital taxing rights create several distributional disputes and possibilities for double taxation, even in the VAT system. See: Sean Bray, "The European Union's ViDA Proposal: Ignoring Principles Does Not Make Tax Policy Fairer," Tax Foundation, Jun. 20, 2024, <https://www.taxfoundation.org/blog/eu-vat-digital-age-vida-proposal/>.

DSTs in Online Goods Shopping

The same problem appears in goods, not just travel.

Suppose a shopper with an affinity for cooking wants to buy a handmade ceramic set of kitchenware. She is not looking for mass-produced mugs. She wants something slightly irregular, glazed by hand, with a maker's note in the box. She searches online, clicks a shopping ad, reads a gift-guide review, leaves without buying, later sees a short video ad, and finally purchases the set through a large online marketplace.

The seller is a small ceramicist. She is good at clay, glazes, and design. She is not good at search-engine marketing, fraud prevention, conversion tracking, or other features of e-commerce. The marketplace gives her a storefront, product search, reviews, transaction tools, and access to buyers she would struggle to reach alone.

Assume the shopper buys a €500 handmade set. The marketplace receives a €75 commission from the seller. To generate the sale, much like an OTA, the marketplace pays additional digital services.

The marketplace earns €75 from the seller, but it spends much of that amount finding the buyer. It pays for shopping ads, affiliate referrals, retargeting, and analytics, and the retargeting agency in turn purchases ad space on a social video application.

Table 2. How Gross-Base Taxation Stacks in Online Marketplaces

Firm	Gross Revenue	Paid to In-DST-Scope Firms	Other Costs	Net Income Pre-DST	DST Paid	DST as % of Pre-Tax Net Income
Online Marketplace	€75.00	€42.00	€29.25	€3.75	€2.25	60.0%
Search / Shopping Engine	€15.00	€0.00	€12.60	€2.40	€0.45	18.8%
Affiliate / Comparison Site	€10.00	€0.00	€9.00	€1.00	€0.30	30.0%
Retargeting Vendor	€12.00	€8.00	€3.64	€0.36	€0.36	100.0%
Social Video App	€8.00	€0.00	€6.40	€1.60	€0.24	15.0%
Attribution / Measurement Vendor	€5.00	€0.00	€4.60	€0.40	€0.15	37.5%
Total	€125.00	€50.00	€65.49	€9.51	€3.75	39.4%

Source: Author's calculations.

As in our prior example, the gross revenue of the whole chain at €125 exceeds the actual final revenue earned from all of these online matchmaking services (€75) because €50 is counted twice.

Note that DST can gobble up all revenue from a thin-margin business: the retargeting vendor, which receives €12 from the marketplace, pays €8 to the social video app, incurs €3.64 of other costs, and earns €0.36 before tax. A 3 percent DST on €12 is €0.36. The tax consumes 100 percent of pre-DST income. This is, of course, a designed example, but it shows the absence of limiting principles in DST design.

Economic Principles and the Penalty on Specialization

The central economic objection to DSTs is not merely that they raise costs, but that they do so in an uneven way (which is already inefficient) that penalizes specialization (which is especially inefficient).

As mentioned above, a tax system should avoid distorting production decisions when it can; we do not want people to reallocate production purely for tax reasons. DSTs can do that by applying a different number of layers to different economic activities. But worse yet, they seem to push firms to make inputs in-house rather than buy them from better specialists.

A marketplace that buys search advertising, retargeting, and measurement services can face more tax pyramiding than a vertically integrated firm that performs more functions inside the same corporate group. The tax, therefore, favors shorter, more integrated chains over longer, more specialized chains, even when specialization is economically superior.

Each firm has different capabilities. The internet works because these specialized services can be combined. A consumer receives a better match. A small seller reaches a larger market. The firms in the stack perform tasks that would be uneconomical for any one small supplier to perform alone. DSTs tax those links. They are often defended as a way to tax large digital firms, but they can operate as taxes on the matching process itself.

The burden, of course, is likely to flow beyond the formal taxpayer. A digital firm may absorb some of the tax via lower margins. But over time, some burden may be passed on to consumers through higher prices. The statutory taxpayer is not necessarily the economic taxpayer.⁷ This has the potential to relieve the high-burden margins, of course, but only at the expense of the final consumer—and if the consumer is price-sensitive, it will come at the expense of volume, with consumers substituting away from transactions that rely on the specialized stacks of internet services we see above.

Implications for US and European Policy

The better way to tax digital consumption than DSTs should be familiar to European countries that have implemented DSTs. It is not to create a separate gross-revenue tax on selected digital firms. It is to use a broad, destination-based VAT or GST.⁸

A VAT is collected throughout the production chain, but it is designed not to tax business inputs repeatedly. Firms charge VAT on sales and generally deduct VAT paid on their own business purchases. The European Commission describes VAT as collected fractionally, with taxable businesses deducting the tax they have paid to other taxable persons on business purchases. It notes that this approach is “neutral,” explaining that “the tax borne by the final consumer is the same regardless of how many transactions are involved.”⁹ In other words, it averts the pyramiding problem shown above for DSTs.

7 Dominika Langenmayr and Rohit Reddy Muddasani, “Navigating the Amazon: The Incidence of Digital Service Taxes,” CESifo Working Paper No. 12713, 2025, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6848319.

8 Cristina Enache, “Are Digital Services Taxes a Viable Solution for the EU Budget?,” Tax Foundation, Jun. 18, 2026, <https://www.taxfoundation.org/research/all/eu-digital-services-taxes-eu-budget/>.

9 European Commission, “How does VAT work?,” https://taxation-customs.ec.europa.eu/taxation/vat/vat-directive/how-does-vat-work_en

Under a VAT, if a marketplace buys advertising or measurement services, the VAT applies uniformly in a single layer to the value of those services; either those services themselves remitted VAT, in which case, the relevant value-added is credited in all transactions farther down the chain—or those services did not remit VAT, in which case the relevant value-added is captured and taxed at the marketplace level.

The EU already has a structure for administering cross-border VAT on digital and e-commerce transactions. The One Stop Shop (OSS) allows businesses selling goods or services to consumers across the EU to register once, file one VAT return, and make one payment through a single online portal. Businesses charge VAT at the customer's country rate, which the EU describes as destination-based VAT. OSS can also be used by online marketplaces that facilitate sales between sellers and EU consumers.¹⁰

EU countries can tax digital consumption through VAT without creating a separate gross-revenue tax on selected intermediaries and advertising firms. Where VAT administration is difficult, the answer is better VAT administration, not a parallel DST.

As for the United States, it has legitimate interests at stake. Many firms in the digital stack are American. DSTs can reduce the revenue and business prospects of many US-headquartered businesses.

Given the US interest in curtailing DSTs, the US should be willing to loosen or remove some of its own discriminatory taxes on services, such as elements of the base erosion and anti-abuse tax. It should be willing to make concessions on tariffs, and avoid demands that are antagonistic or low-value. The US derives significant value from services exports, and fighting for principled treatment of cross-border services should be one of the most important US trade goals.¹¹

The takeaway for all is that tax policy should not punish the specialization that makes modern commerce so smooth. The instantaneous precision created in internet commerce over the last few decades is a marvel that should not be taken for granted. A B&B owner, a traveler, a ceramicist, or a culinary enthusiast should be able to take advantage of this stack of internet services, knowing the tax rate on those services will be the same as the tax rate under another method—no more, no less. The economic efficiency of a neutral tax system is reason enough to design the tax system neutrally, but fairness demands it as well.

10 Your Europe, "EU VAT One Stop Shop (OSS)," https://europa.eu/youreurope/business/taxation/vat/vat-digital-services-moss-scheme/index_en.htm.

11 Alan Cole, "Tariffs by Another Name: How Discriminatory Taxes on Cross-Border Services Threaten America's Export Edge," Tax Foundation, Apr. 15, 2026, <https://www.taxfoundation.org/research/all/global/tariffs-discriminatory-cross-border-services-taxes/>.