Tax Foundation Europe

Digital Services Taxes in the United Kingdom and Belgium Create Large Economic Harms per Unit of Revenue

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Key Findings:

- Tax Foundation evaluations of digital services taxes in Belgium (proposed) and the UK (enacted) show tiny annual revenue collections relative to the total treasury revenue raised by the government: €148 million projected in Belgium and £808 million actual in the UK for the year 2024-2025; both are less than 0.1 percent of revenue.
- However, this revenue gain comes at a fairly significant cost to GDP: -€342 million in Belgium (more than twice the revenue raised), and -£903 million in the UK (more than the revenue raised).
- Tax Foundation dynamic modeling shows digital services taxes reduce both labor and capital supply, lowering investment, GDP, and labor compensation.
- Tax Foundation's results are driven especially by the impact of business input taxation on the cost of capital and investment.
- Tax Foundation's results are in many cases limited by data, and do not model all the harms of non-neutrality and "tax pyramiding," a known flaw of gross receipts taxes; the results therefore may even understate the negative impact.

Tax Foundation Europe is Europe's leading voice on tax policy, established as an international non-profit (AISBL) in Belgium.
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Digital services taxes (DSTs) are taxes on gross revenues that large companies earn from certain digital activities. Most cover revenue from digital advertising or other intermediation, though designs vary. The most economically significant DSTs are typically levied by European countries and aimed at very large software companies, most of which are based in the United States.

A significant flaw in DSTs is nonneutrality, which creates economic inefficiencies. The nonneutrality comes from discrimination by industry or business model, implicit discrimination through thresholds or carveouts that define the list of in-scope payers, and the gross receipts base.

As a result of these qualities, DSTs are comparatively harmful, relative to other taxes, per unit of revenue raised. This paper will discuss the economic theory undergirding this claim and examine two specific examples.

One of these is Belgium; Tax Foundation Europe most recently made this argument in testimony before the Belgian Finance and Budget Committee on August 31, 2026.[1] The testimony described several drawbacks of the Belgian DST proposal and employed both quantitative and qualitative analyses.

This paper will recap the Belgian analysis and extend its methods to the United Kingdom's DST as well. Then it will discuss the foundations, methods, and limitations of quantitative modeling in Tax Foundation's DST work.

Tax Foundation's quantitative and qualitative analyses are consonant with each other; they come from the same roots in key public finance works studying tax neutrality, and generally support neutrality as a pillar of sound tax policy. However, the quantitative and qualitative analyses serve different roles. In some cases, quantitative work makes effects more understandable and tangible—and in other cases, qualitative analysis might help describe effects for which quantitative modeling methods do not exist.

The results below concern the effects of DSTs on the supply of labor and capital—and ultimately, the gross domestic product—of both Belgium and the UK. The model results are simplifications in many respects, but the simplifications are for practical reasons. More robust or complex modeling of DSTs may even strengthen the case against them.

1 Cristina Enache, "Legislative Proposal to Adapt the Income Tax Code to the Digital Economy Repeats the Economic and Legal Mistakes of Digital Services Taxes," written testimony submitted to the Belgian Finance and Budget Committee, Tax Foundation Europe, August 31, 2026, https://www.taxfoundation.org/testimony/belgium-digital-tax-proposal/.

Modeling Results: Belgium

For Belgium, Tax Foundation Europe's testimony included modeling of a tax proposal that is not explicitly named as a DST, but mirrors one in intent and economic properties. Though DSTs have typically been assessed as a tax on gross receipts, the Belgian proposal adds an extra step. Rather than taxing gross receipts directly, it calculates an imputed income from a static deemed profitability percentage. This deemed profitability is assumed, not demonstrated via accounting. Then, the policy taxes a percentage of that deemed income. This intermediate step does not, however, change the form of the tax to something notably different from a DST; gross receipts multiplied by two percentages (the deemed profitability, then the tax rate) can reduce mathematically to gross receipts multiplied by one percentage, as the written testimony shows.

Table 1. Effects of the Belgian Digital Tax

Revenue (annual)	+€148 million
Change in GDP	-€342 million (-0.056%)
Change in Capital Stock	-0.073%
Change in Wage Levels (per hour)	-0.03%
Change in Hours Worked	-0.03%
Total Change in Labor Compensation	-0.053%

Note: Economic variables are based on 2024, while policy variables are based on 2026.
Source: Tax Foundation Europe, Belgium Corporate Tax Model; Authors' calculations.

The DST proposal is by any measure a very small tax relative to the total size of the Belgian economy, so all the effects described are modest. However, the overall results are not favorable.

The DST is modeled as a proportional tax on gross output, with its corporate income tax deductibility feature partially reducing its burden on capital. The model finds a reduction in GDP and total labor compensation coming from two different sources: roughly, people working slightly less efficiently, and people working slightly less overall.

The DST slightly reduces the overall returns to work, in part by simply reducing the after-tax purchasing power for Belgian consumers, and in part by reducing the overall productivity of Belgian work, including by discouraging investment by Belgian firms. These effects combine to reduce after-tax returns to work, and in turn, the modeled workers are more likely to engage in non-market activities.

The revenue modeling of Belgium's tax borrows revenue-estimating techniques from the already-existing French DST, while the economic modeling is based on neoclassical production functions, a number of long-established public finance results, and a few critical economic elasticities used consistently throughout Tax Foundation's work.[2]

2 Tax Foundation, "Overview of the Tax Foundation's General Equilibrium Model," July 2026, https://www.taxfoundation.org/wp-content/uploads/2026/07/ModelMeth26.pdf

Modeling Results: United Kingdom

Table 2. Effects of the British Digital Tax

Revenue (annual)	£808 million
Change in GDP	-£903 million (-0.032%)
Change in Capital Stock	-0.048%
Change in Wage Levels (per hour)	-0.019%
Change in Hours Worked	-0.013%
Total Change in Labor Compensation	-0.031%

Note: Economic variables are based on 2024, while policy variables are based on 2026.
Source: Tax Foundation Europe, Belgium Corporate Tax Model; Authors' calculations.

The United Kingdom's digital services tax raised £808 million in tax year 2024/25. As for Belgium, this tax is modelled with similar effects as a proportional output tax.

The DST is deductible from corporate income tax according to British law.[3] A non-deductible DST would have a stronger negative effect on output.

Its less sizable effect on output is largely explained by Britain's taxing labor more moderately at the margin than Belgium. The DST adds a small wedge to the tax on labor, and labor supply responds to the after-tax wage.

Because additional labor compensation is already taxed at about 35.9 percent in Britain against 65.0 percent in Belgium (or 49 and 84 percent after consumption taxes) for a single worker earning the country's average wage, the same proportional wedge adds a larger hit to what a Belgian worker keeps, so labor supply and total output contract more strongly.[4]

Macroeconomic Modeling of Digital Services Taxes

Digital services taxes present some significant challenges for dynamic policy modeling, including by Tax Foundation. Tax Foundation has often used qualitative critiques of digital services taxes, such as highlighting their complexity, nonneutrality, and pyramiding. However, these properties—those that make DSTs poor tax policy—often are the same properties that make them more challenging to model. The overall result is that our modeling of the harms of DSTs is in many respects conservative or understated, because the data, the elasticities, or the computations required to fully show the harms of DSTs are impractical or unavailable.

Digital services taxes create several different economic deadweight losses. Some are common among tax policies, and others are present only in taxes with particular structural defects. Below, we will discuss the different possible deadweight losses and the challenges they present for modeling.

3 HMRC, "Digital Services Tax Manual, DST47100 - UK CT Deductibility of DST," Jul. 31, 2024, https://gov.uk/hmrc-internal-manuals/digital-services-tax/dst47100.
4 OECD, "Labour Taxation – OECD Comparative Country Indicators," OECD Data Explorer, accessed Apr. 22, 2026, https://data-explorer.oecd.org/; author's calculations.

Most Taxes Distort Behavior Toward Non-Market Activities

One common effect of many taxes, no matter how well-structured, is that they raise the relative value of activities outside of formal markets: for example, for leisure and socialization rather than market work used to pay for market consumption.

Non-market activities are still valuable activities, and ones we would expect even in the absence of any tax burden. But these become more attractive relative to the alternative if the alternative is taxed. A tax on market activity encourages people to forgo some of those market activities and instead do non-market activities, a decision that would not have been freely made in the absence of tax.

This is a moderate but well-studied effect, quantifiable through a labor supply elasticity. Tax Foundation Europe's modeling here uses 0.2 for these purposes, meaning that a 1 percent reduction in real after-tax compensation results in 0.2 percent less work effort.[5]

Importantly, this tax burden holds in general equilibrium regardless of whether one considers the tax "passed on" to the consumer or "passed back" to the worker. In either case, it reduces the value of market activity after a complete closed loop from earning money to spending it on consumption.

Additionally, this tax burden is integrated across different types of taxes. For example, taxes on worker income interact with excise taxes, creating a greater combined impact than the sum of the two impacts calculated independently. The "Harberger triangles" representing deadweight loss vary with the square of the tax rate, so calculating excise or commodity taxes independently of the underlying general tax regime will understate their burden.[6]

Tax Foundation integrates consumption and excise taxes together with labor taxes to form the overall tax burden on market activity; this interaction, which is more severe in Belgium than in the UK, is the primary factor explaining why Belgium's tax incurs a greater impact per unit of revenue raised.

Inefficiency of Differing Taxation of Consumption

A uniform tax on consumption distorts only the margin described above, between nonmarket or "leisure" activities and market activities. A nonneutral consumption tax—one that falls on some goods but not others—adds a second form of distortion. This distortion lies within the realm of market activities, rather than on the market-nonmarket margin. When consumption taxation is nonneutral, people have an incentive to shift consumption from heavily taxed goods or services to lightly taxed goods or services. The incremental amount of change that consumers make only in the presence of the uneven tax regime reduces consumer surplus.

There are some noted exceptions to the optimality of neutral taxation, often concerning internalizing externalities, or approximating a user fee for a government service. However, the benchmark of neu-

5 Tax Foundation, "Overview of the Tax Foundation's General Equilibrium Model," July 2026, https://www.taxfoundation.org/wp-content/uploads/2026/07/ModelMeth26.pdf; see also Congressional Budget Office, "How the Supply of Labor Responds to Changes in Fiscal Policy," Oct. 25, 2012, http://cbo.gov/publication/43674.

6 Lawrence H. Goulder and Roberton C. Williams III, "The Substantial Bias from Ignoring General Equilibrium Effects in Estimating Excess Burden, and a Practical Solution," *Journal of Political Economy* 111:4 (August 2003): 898-927, https://doi.org/10.1086/375378.

trality shown by Anthony Atkinson and Joseph Stiglitz (1976) remains the default frame of reference.[7]

Unfortunately, adequately representing this inefficiency at scale and in detail exceeds the scope of data availability, researched elasticities, and general model-building capacity, whether at Tax Foundation or elsewhere. It would in principle require a vast catalog of goods and services in the economy, along with elasticities of substitution between each of them. (An elasticity of substitution measures the amount that consumers shift their budget from one activity to another possible alternative as a result of a tax.)

Consumers may, for example, largely shift to close substitutes that roughly resemble the forgone option, but also shift some spending to weaker substitutes and unrelated goods that are substantially different from the forgone option. The complexity of such calculations can expand polynomially with the quantity of potential spending options, as each one has a relationship with the others. Furthermore, the deadweight loss comes in part from lost consumer surplus—the difference between what a consumer paid and what a consumer hypothetically would have been willing to pay for the good received. This quantity is not easily derived; economists can typically only infer that it has been reduced in the tax-motivated consumption change.

Tax Pyramiding Extends Nonneutrality Issues

A tax on gross receipts, like a DST, with no crediting or deductibility system to avert double taxation, further extends the nonneutrality problems of differential consumption taxation, while also producing a few new issues as well.

The problems of gross receipts taxes are especially salient for multi-firm chains where the same value-added ends up an explicit or implicit cost of revenue for several in-scope businesses throughout the chain.

Economists have understood the drawbacks of gross receipts taxation for decades, and advised against taxing intermediate inputs.[8] Unfortunately, the taxation of intermediate inputs is relatively common in DST design, and a specialized chain of diverse software providers can quickly find itself paying a DST multiple times on the same activity, as Tax Foundation has recently shown with stylized examples.[9]

Some of the drawbacks of nonneutrality from pyramiding are virtually the same as those described above, but amplified: there is an even greater range and variety of effective tax rates across different patterns of economic activity. The incentive for buyers to substitute away from multiply taxed goods and services becomes even stronger. Indeed, as deadweight losses tend to vary with the square of tax rates rather than linearly, double taxation is more than doubly distortive.

But there are also a few extra distortions from taxing business inputs that are not quite fully captured in models of nonneutral consumption taxes. Business inputs impact production allocation, not just consumption allocation.

7 Anthony B. Atkinson and Joseph E. Stiglitz, "The Design of Tax Structure: Direct versus Indirect Taxation," *Journal of Public Economics* 6:1-2 (July-August 1976): 55-75, https://doi.org/10.1016/0047-2727(76)90041-4.
8 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.aeaweb.org/aer/top20/61.1.8-27.pdf.
9 Alan Cole, "Taxing the Matchmakers: How Digital Services Taxes Cascade Through Online Commerce," Tax Foundation, Jul. 16, 2026, https://www.taxfoundation.org/research/all/global/digital-services-tax-online-commerce/.

These concepts are related, but not entirely the same. In either case, the economy produces, for tax reasons, something less than what would maximally make consumers happy. In a closed economy that consumes its own output, these are arguably the same effect, and the difference is driven by who makes the tax-motivated decision.

But in an open economy, like the typical European economy, a nonneutral tax on business inputs can artificially change the profitability of different production processes for *export* industries, introducing a new kind of inefficiency that would not be present in any kind of consumption tax system. Roughly, companies in a DST-levying country may choose to export less valuable services purely to avert the DST on the production inputs of the otherwise more lucrative export.

Difficulties in quantifying these DST drawbacks, of course, are even more substantial. The model of the different consumption options and substitution elasticities between them would have to extend to the intermediate inputs and model different production options for different firms, with changes in decision-making coming from the taxes on intermediate inputs. These inefficiencies are real and relatively simple to show in a stylized example with only a handful of products, where a consumer or producer shifts to a less-desirable or less-profitable product, simply for tax reasons. But these effects are impossible to quantify systematically in a large dynamic economy with many goods and unknown preferences.

Taxing the Time Structure of Production

Taxes on business inputs may, in some cases, impact investment. The effect that will be described below is arguably an extension of the production efficiency concerns described above. But it deserves special discussion because of the role of capital in typical models of macroeconomic growth, including our own.

An economy's available productive capacity is often shown as a function of factors including labor and capital; the original form, developed by Paul Douglas and Charles Cobb, is commonly taught in early textbooks.[10] (A production function may include other terms or residuals as well; an efficient or inefficient tax code driving efficient or inefficient production allocation would likely be called a form of "total factor productivity" in a typical production function.)

If a DST contributes to the cost of a capital good, it may have an impact on the cost of capital in business decisions, and ultimately, the time structure of production: not just what or how to produce in any given period, but how much to create capital goods—such as equipment, software, or ideas—that assist in production in future periods. Tax the process that creates capital goods, and one ultimately gets fewer of them.

Tariffs in the US have spurred a high-quality discussion of taxes on business inputs and their impact on investment behavior in the United States. A seminal framework for an after-tax user cost of capital, developed by Robert Hall and Dale Jorgenson, undergirds much of this work.[11] Calculations published

10 Charles W. Cobb and Paul H. Douglas, "A Theory of Production," *American Economic Review* 18:1 (March 1928): 139-165, https://www.jstor.org/stable/1811556.
11 Robert E. Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *American Economic Review* 57:3 (June 1967): 391-414, https://www.jstor.org/stable/1812110.

by Tax Foundation in July 2026 show that even under a corporate income tax system with full expensing—which eliminates the tax wedge on marginal investments in the basic Hall-Jorgenson model—a distortive tax on business inputs can still impact the user cost of capital.[12] A more detailed extension of these insights was published by American Enterprise Institute and Tax Policy Center scholars later the same year.[13]

Though this research was aimed at a US audience and US policy, much of this discussion would apply to European DSTs as well. DSTs have some similar properties to tariffs, as discussed explicitly in Tax Foundation research.[14] And they too can constitute an unrebated tax wedge on the creation of a capital good, for example, when software or physical capital are created with goods or labor located through online search or digital marketplaces.

Overall, there is good reason to model gross-receipts taxes generally, and DSTs specifically, as falling in part on the capital production factor, not just the labor factor. This explains the modeling choices made by Tax Foundation for DSTs; they are modeled to fall on gross output, not consumption, but the incidence on capital is reduced in part by corporate income tax deductibility, where applicable.

Modeling Conclusions

Overall, our modeling of the economic effects of DSTs may be conservative. Though it captures the extensive margin of economic production versus leisure, and the margin of investment versus consumption, both of which are important, it does not capture the significant substitutions within those categories that come from inefficient differential taxation of production and consumption. In other words, our modeling does not fully capture the insights that key pillars of public finance literature like Diamond-Mirrlees and Atkinson-Stiglitz might have to offer on DSTs.

This modeling conservatism is attributable primarily to the limitations of data, the economic literature, and calculation, not doubt in the overall value of tax neutrality.

Moving beyond pure models of taxes and economic decision-making behavior to capture messy real-world realities would be further outside the scope of Tax Foundation modeling, but it merits some mention: Tax Foundation testimony on the Belgian DST proposal notes legal disputes, relabeling disputes, treaty obligations, and administrative complexity as additional drawbacks of DSTs. These legal, compliance, and enforcement issues are outside of the quantitative modeling tradition from which Tax Foundation operates, but economic insight can be applied to them. Disputes over taxes occupy productive resources, such as skilled professionals, who could better be put to use in more productive parts of the economy.

Overall, even though the modeling results above show significant drawbacks from DSTs, they do not quantify all of the drawbacks. A more complete assessment could be even more negative.

12 Alex Durante and Kyle Pomerleau, "There Is No Low-Tax Case for Tariffs," Tax Foundation, Jul. 6, 2026, https://www.taxfoundation.org/blog/no-low-tax-case-for-tariffs/.
13 Kyle Pomerleau, Thomas Brosy, Robert McClelland, and John Wong, "The Impact of Tariffs on the Cost of Capital in the US," American Enterprise Institute, Sep. 30, 2026, https://www.aei.org/research-products/report/the-impact-of-tariffs-on-the-cost-of-capital-in-the-us/.
14 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/.