



# Taxing Big Tech Vs Regulating Them: A Public Finance Comparison of Digital Services Taxes



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**Submission:** June 20, 2023; **Published:** June 28, 2023

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## Abstract

This article explores the potential efficacy of a hypothetical digital advertising tax as an alternative approach to comprehensive data legislation that governs consumer data collection. It explores whether such a tax could effectively serve many of the same objectives as regulatory measures. The article focuses on analyzing the public finance characteristics of such a tax, aiming to assess its efficiency and impact on different stakeholders. The study investigates how taxes could potentially mitigate some of the more severe privacy and social risks associated with an economy driven by digital advertising, in comparison to the regulatory frameworks currently under consideration in the U.S. Congress. In addition, a “privacy emissions” tax may be more efficient than regulation that depends on agency investigations and fines, as firm activities can be heterogeneous and opaque and privacy legislation has stalled in the U.S. Congress. The tax model is applied to recent digital services taxes passed in Maryland and the EU.

**Keywords:** Taxing; Public Finance; Stakeholders; Social risks; Economy; Digital Services; Market

**Abbreviations:** GDPR: General Data Protection Regulation; DST: Digital Services Taxes

## Introduction

As the digital advertising market continues to grow (at over \$300 billion in 2022), there is increasing focus on the regulation of technology that heavily relies on data collection. The main concern for regulators is that consumers often lack a comprehensive understanding of how digital data collection works, particularly when it comes to transactions involving their personal information in exchange for digital services. The intricate process of data collection and subsequent aggregation across various platforms can potentially encroach upon individual privacy. Moreover, platforms that depend on targeted advertisements fueled by extensive consumer data face skewed incentives. These companies are driven to retain consumer attention on their services for as long as possible, and this can lead to content decisions that prioritize engagement over accuracy or quality. Consequently, they may resort to promoting negative or radicalized content that is more likely to captivate users. Similarly, platforms may even be motivated to endorse and propagate misinformation to boost engagement levels. The convergence of these factors explains the increased interest in addressing the challenges posed by data-driven technologies and developing regulations designed to mitigate these outcomes.

In the United States, the right to privacy is not explicitly guaranteed, and the legislation at the federal level, and until recently, at the state level, tends to be specific to particular sectors rather than comprehensive [1]. While there is no overarching federal consumer data protection bill in the U.S. similar to the European Union’s General Data Protection Regulation (GDPR) that specifically addresses the current landscape of major tech platforms, there are several consumer data laws in place for industries such as finance, education, children’s content, and healthcare.

There has been a recent surge in efforts to pass a federal privacy bill, exemplified by initiatives like the American Data Privacy and Protection Act [2]. However, these bills have encountered obstacles and lost momentum along the way. Despite the potential for the U.S. to enact a comprehensive privacy bill in 2022, the U.S. Congress has struggled to reach a consensus on these crucial issues, leading to delays and a lack of progress in passing such legislation.

Within this context, numerous states are engaged in discussions and deliberations concerning digital services taxes (DST). In

addition to contemplating and enacting their own comprehensive privacy laws, these states are exploring the possibility of implementing taxes on digital technology firms, mirroring the approach taken by certain European countries. Notably, the state of Maryland has already passed a DST specifically targeting digital advertising reliant on consumer data collection, and several other states are actively contemplating comparable legislation [3]. The Maryland tax is currently encountering substantial legal opposition, adding further complexity to the ongoing debates surrounding DSTs.

This article explores the potential efficacy of a hypothetical digital advertising tax as an alternative approach to comprehensive data legislation that governs consumer data collection. It raises the question of whether such a tax could effectively serve many of the same objectives as regulatory measures. The article focuses on analyzing the public finance characteristics of such a tax, aiming to assess its efficiency and impact on different stakeholders. The study investigates how taxes could potentially mitigate some of the more severe privacy and social risks associated with an economy driven by digital advertising, in comparison to the regulatory frameworks currently under consideration in the U.S. Congress. In addition, a “privacy emissions” tax may be more efficient than regulation that depends on agency investigations and fines, as firm activities can be heterogeneous and opaque.

Furthermore, the article applies these concepts to examine the practical implementation of a DST in Maryland, which represents the most advanced and tangible example of this approach in the U.S. It reviews the structure of the Maryland policy as a tax on gross receipts, providing insights into its implications and challenges. By exploring these elements, the article aims to shed light on the potential benefits and limitations of employing a digital advertising tax as a means to address privacy concerns and societal risks associated with the digital advertising industry.

This article proceeds as follows. Section 1 reviews the case for government action in the digital economy that relies on copious consumer data collection. Section 2 lays out how taxes and regulation can address the market failures described in section 1. The article then compares how the two strategies fare for efficiency and who bears the burdens of the government strategy, comparing tax vs regulatory regimes. Finally, the article reviews current DSTs proposed or passed in the U.S. states and applies the analysis to these actual situations.

### Market Failures in the Digital Economy

Leading up to the 2016 U.S. presidential election, discussions surrounding market failures concerning consumer data collection primarily revolved around privacy violations and market concentration [4]. The advent of the Internet and its increasing accessibility through desktop and mobile devices brought about significant shifts in the fundamental dynamics of information transactions. Digital services emerged with the

ability to effortlessly gather vast amounts of data, surpassing what their physical counterparts could achieve. This data could then be stored, merged, and analyzed in novel ways. Previously, activities and transactions that were confined to a limited group of individuals and existed solely in human memory have now been transformed into permanent records held by profit-driven organizations. Additionally, the proliferation of the internet fostered the consolidation of major platforms catering to consumers, creating a virtuous cycle of consumers, content creators and advertisers converging [5].

The convergence of market concentration and the widespread adoption of novel data collection methods gives rise to a distinct market structure. Digital economies are commonly defined by the dominance of expansive platforms that amass substantial volumes of consumer data from their user base. These platforms leverage this data to generate advertising revenue, capitalizing on the ability to display ads to a significant number of consumers, precisely targeting those individuals who are most likely to make purchases. As a result, these prominent platforms have emerged as formidable forces in the realm of digital advertising, incentivizing them to maximize user engagement and retention on their websites [5].

The prevailing market dynamics surrounding large platforms and social networks bring numerous benefits to society. Firstly, these services thrive on scalability, meaning they improve as more individuals utilize them. The revenue model centered around advertisements enables consumers to access and use these platforms without direct financial costs, instead leveraging their data as a form of transaction. This has led to a significant increase in collective knowledge, as vast amounts of micro-decisions can now be recorded, a feat that was previously unattainable [6]. However, it remains challenging to gauge the extent to which consumers truly comprehend the transaction they appear to voluntarily engage in, exchanging their data for digital services. Individuals can have different preferences for privacy. Despite expressing concerns about data privacy, consumers repeatedly demonstrate their willingness to share intimate information about themselves in exchange for these services, giving rise to what is known as the privacy paradox [7]. In some instances, even individuals who value data protection may find their privacy compromised due to network effects, whereby similar consumers willingly share their data [8]. Consequently, it remains unclear whether privacy and the safeguarding of consumer data should be treated as an inherent right or as a conventional economic good open to trade and exchange.

In addition to the concerns surrounding the treatment of data as traditional economic goods, it is essential to consider the nature of the consumer data market. Within information-based economies, there is a tendency for market power to become concentrated as consumers become locked into specific systems or platforms, and the network effects of various technology platforms

amplify their usefulness. As a consequence of this winner-take-all dynamic, inferior products may emerge, often at the expense of privacy choices. Moreover, these products demonstrate decreasing marginal costs as the initial expenses associated with software development are spread across expanding customer bases. Consequently, this can lead to the emergence of natural monopolies, where multiple firms find it unviable to compete within a particular market due to the significant fixed costs and the dynamics of zero marginal costs [4].

More recently, particularly after the 2016 presidential election, there are growing concerns regarding the detrimental effects of ad-based revenue models on mental health, news reporting, and democracy. This is especially relevant to social networks where consumers play dual roles as users and content creators. These platforms are driven by the incentive to maintain consumer engagement, ultimately boosting their advertising revenues. Empirical research has revealed that negative content, regardless of its factual accuracy, tends to captivate consumers and attract more consumption [9]. Similarly, violent or abusive content follows the same pattern [10]. Consequently, market dynamics end up rewarding platforms that deliver such content to users, while also providing the platforms with detailed data on consumer behavior. Additionally, content creators can exploit these dynamics to shape public opinion, as witnessed in Russia's attempts during the 2016 election [11]. Numerous studies have also established a correlation between social networks and negative effects on mental health, although the extent to which these dynamics are influenced by individual differences and whether overall well-being is positively or negatively associated with social media usage remains uncertain [12,13].

The dynamics mentioned above regarding information technology do not imply the absence of substantial welfare benefits associated with these markets and innovations. Rather, these dynamics indicate that the market fails to efficiently account for certain social costs involved in individuals' decisions to engage with tech platforms concerning privacy, information dissemination, and mental health. Moreover, there are concentration tendencies within the market that discourage healthy competition. In cases where negative externalities and lack of competition arise, government intervention can enhance market efficiency. The following section will provide a general overview of these government interventions before applying them to the tech industry specifically.

### Taxes and Regulatory Responses to Market Failure

In the face of market failures as described above, government intervention may improve efficient outcomes as compared to the market equilibrium. There are a number of interventions available to government, but for simplicity these will be characterized as actions over price (taxes or price controls) or quantity (regulation). In practice, these exist on a spectrum and can occur in tandem. For

example, an outright ban of certain production materials can be viewed as an infinite tax while competitive regulation can involve both price and quantity controls depending on market conditions [14].

In theory, taxes and typical command and control regulations can achieve the same result. Command and control regulation could, for example, impose a quantity restriction for production. In doing so, regulators are creating the conditions for a corresponding price. Similarly, government can impose a tax on a market with negative externalities, thereby increasing the price and reducing the equilibrium quantity bought and sold.

The conditions under which taxes and regulatory quantity controls produce the same outcomes generally involve perfect information. Most research that compares these two regimes involve environmental concerns, where emissions are the negative externality in the production of some other product. The "Pigouvian tax" that optimizes efficiency involves a tax on that final product that is adjusted for the social pollution that each additional unit sold imposes (assuming the number of firms is relatively constant). The government therefore must understand not only the aggregate social cost of pollution, but also the marginal cost of pollution of each additional unit of production [15,16]. Likewise, idealized command and control models also assume that the government has perfect knowledge about the market and is able to implement and monitor these regulations at low-to-zero cost. Both idealized models also assume that the government designs and implements these policies without rent-seeking inefficiencies [17].

In practice, price and quantity controls are both imperfect solutions to market failures and offer diverging outcomes under different conditions. Taxes – either placed on the pollutant emissions from production, or on the unit of production – are particularly appealing when certain conditions prevail. If there are highly differentiated firms that require bespoke regulatory responses, and/or if regulation requires difficult to process information about the regulated firms production functions, taxes may be a more efficient [15]. If firms are sufficiently heterogeneous, price controls offer more certainty of the cost of pollution abatement, and firms can adjust accordingly [18]. Firms with low-emission production processes can maximize profits under the new tax regime more cheaply than firms with high-emission production. This adjustment can occur without requiring a government agency to understand each firms' production process and marginal cost curve.

On the other hand, traditional regulatory approaches have advantages when the social cost of the externality increases rapidly compared to the cost of abatement. An extreme example of this situation may occur if a threshold level of pollutants is particularly harmful – the cost of not reducing emissions is very high (and accelerating). A regulatory emissions standard in this

situation offers more certainty about the equilibrium emissions level, although the costs of the reduction of pollution are less understood [14].

While this article is primarily interested in comparing taxes and regulation to address the negative externalities associated with data collection and ad-revenue business models, it should be noted that inefficiencies related to market concentration may also provoke price and quantity controls. Comparing tax and command and control regulation is different if the primary concern is market concentration or monopoly power. First, antitrust laws can proscribe mergers or anti-competitive business practices. In natural monopoly cases wherein market power may be efficient, government can broadly regulate production such that the monopoly earns normal rates of return (a quantity restriction) or can tax the firm. For monopolies, a unit tax may increase consumer prices by more than the tax itself, whereas a lumpsum tax reduces monopoly profits. Price ceilings can also reduce monopoly profits without lowering output, though they require high fees of implementation and regulator knowledge [14].

The above material essentially ignores political economy concerns in its broad comparison of tax vs regulatory policy. Drafting both tax law and regulation are subject to rent seeking behavior by industry participants, and this can manifest in different ways. Producers can seek to influence the process to benefit incumbents and/or firms with comparative advantages in compliance. Firms may also consider the risks of non-compliance, especially if government implementation is costly and imperfect; it may be rational for companies to violate a regulatory standard if the expected cost is low enough.

In general, determining the optimal response to market failures is rarely clear cut. The next section applies the broad dynamics discussed above to consumer data markets.

### Public Finance Considerations of Consumer Data Taxes vs Regulation

Given the market dynamics in information technology and large internet platforms, how might a tax policy compare to a regulatory policy? As described above, consumer data collection and use in ad-based revenue models creates negative externalities related to heterogeneous privacy preferences, misinformation and harmful mental health impacts. In addition, the tendency for market aggregation can create firm pricing power, resulting in consumer lock-in, lack of competitiveness and lower incentives to innovate (including over consumer privacy).

In this context, internet platforms can be viewed as overproducing consumer service relative to the optimal level. Producers (platforms) and consumers (users and creators) produce/consume too much time-on-site because they are not internalizing the third-party costs inherent in ad-based revenue firms. The data collection, or the targeted advertisements that they

fuel, creates a societal effluent, and an idealized tax would add a cost for each additional segment of consumer time-on-site equal to the additional marginal cost to society that this hour of attention/content creation emits. An idealized regulatory structure would either limit specific types or quantities of data collection or limit the production and consumption of the platform services for each firm to reach the aggregate optimal quantity.

In practice, these hyper-specific taxes or standards are not possible. More realistically, a tax to internalize the societal costs of targeted ads would be proxied. For example, ad-based revenue could proxy for the degree of data collection and targeting, and firms may be required to pay a percentage of these revenues at an increasing (progressive) rate. The rate schedule would similarly likely not be determined by marginal social cost, but rather as an incremental charge in line with similar taxes elsewhere. In the EU, DSTs range from 1-7.5%, and many converge at 3% [19].

Recent proposed and passed legislation in the U.S. at the state and federal level give a sense of what standards may look like in reality, as a contrast to the transaction-cost-free and precise standards of an economic model. Broadly, data collectors would be charged to minimize data collection, with a regulatory body (the Federal Trade Commission in the case of the ADPPA) defining the limits of appropriate data collection for different types of firms. Specific types of data, such as biometrics, would have additional limits or bans. Some platforms may be required to implement privacy assessments or procedures.

To compare these broad outlines of a national privacy tax and regulation, it is useful to start with the most extreme market failures involved with data collection. Consider especially sensitive data, such as Social Security numbers, passwords and genetic data, or data that exploits children. Collecting this type of data and/or using it for targeting presents a “steep” marginal social cost curve, meaning that the costs of this type of data collection grows rapidly (and the costs of not reducing them are high). We might model data collection that exploits children as having an infinitely steep marginal cost curve [20]. In such cases, a standard might be preferable to a tax or fee. This is especially true if policymakers are uncertain about the precise costs of reducing these data collection activities. Uncertainty coupled with a sharply increasing cost to society can create higher levels of inefficiency or deadweight loss from an erroneously levied tax; the loss is significantly lower from a similarly incorrect standard [14].

This may be what policymakers have in mind with proposed or passed legislation that limits social media use by minors. In May 2023, Utah became the first state to require parental consent for social media users under age 18 [21]. Similar regulations have been proposed in multiple other states, including Texas and New Jersey [22]. California has made higher privacy default requirements for users under the age of 18. Policymakers in these states espouse the high cost of social media use (or data collection on children)

as justifications for the limits, even as these regulations can pose additional costs to firms and users alike.

What about cases in which the costs to society do not increase so rapidly? Imprecise location data or browsing history within a platform may cause social costs that rise less rapidly as they aggregate and increase. To be clear, these types of data collection may cause high social costs but do not increase as rapidly as the cases described in the prior paragraph. Avoiding these second (more common) types of data collection may also have relatively high opportunity costs – in other words, the added costs to firms to limit these data may be steeper than the costs to society. In these cases, taxes may be the more efficient policy choice. Taxes allow firms to leverage their own production processes – which are not known by government regulators – to choose the optimal level of data collection and subsequent ad targeting to maximize profits in the face of the additional fee. Companies do not reveal their precise revenue gains from each piece of collected data to government, but rather use the price signal to reach a more efficient outcome.

This issue is compounded as government uncertainty grows. Assuming data collection does not pose extreme marginal costs (which would favor a regulatory standards policy), heterogeneous tech firms with opaque revenue models can make investigatory monitoring to test compliance with standards slow and tedious work [15]. While the pace and amounts of fines that regulators in the EU levied for violations of the GDPR has increased, some of the worst data collection and use abuses still occur, with many cases outstanding for years [23]. Thus, there are areas in tech which appear to favor regulation and standards but where the negative externality of data collection does not exhibit rapidly increasing or infinite social costs, taxes may be the more efficient outcome. Taxes allow variable types of firms with difficult to understand production processes to determine their own optimum output level, and may avoid some of the tougher issues of uncertainty involved in setting regulatory standards.

It is critical to consider who bears the burden of such a national tax policy and compare it to the distribution of a data collection limitation standard. Tax incidence refers to the distribution of tax burdens across producers and consumers, since a unit tax is rarely entirely passed on to consumers or borne entirely by firms. This analysis considers tax incidence compared to its regulatory counterpart. First, consider the impact a unit tax would have on firms that exhibit some market power as we have posited is the case for many tech platforms. Traditionally, the idealized Pigouvian tax to internalize the cost of externalities is only optimal for non-competitive markets if the value of reducing the externality is higher than the reduced consumer welfare caused by higher prices and lower output that oligopoly firms will choose [24]. When firms are able to set their own prices (in markets with firm concentration), unit taxes are passed along to consumers. Tech

platforms with market power in the sale of targeted ads may pass the full cost of the tax on to their advertising customers. This adds an additional marginal cost to these products' inputs and will be distributed accordingly. Thus, the unit tax would reduce targeted ads and presumably the data collection that fuels it, but consumers would bear some burden of the tax; technology platforms would be able to pass on much of this cost. In addition, since the cost that is passed through to consumers impacts consumption, the tax would be regressive.

Regulating data collection, with standards and fines, could impact consumers differently. Because of the two-sided nature of these markets, limiting data collection may change firm incentives to provide internet services like social media for “free,” with a data barter. Companies may choose to offer fewer services or to charge subscription fees for tiers of access. In addition, it is worth noting that regulation may inadvertently compound the market concentration issue. Multiple studies have shown that complicated regulation can help incumbents with the ability to navigate difficult compliance requirements. One study showed that regulation that require consumer action, like opt-in consent, can make large platforms more appealing to consumers leading to higher entry barriers to new competitors [25].

The above analysis does not consider the difference in administrative costs in comparing a tax and regulation. It is worth considering political economy issues in this analysis, though. Many environmental analyses show that regulatory policy may be easier to implement and quicker to adjust than a tax [26]. However, privacy policy may be different in practice. First, the U.S. federal government is clearly having difficulty passing privacy legislation even in cases where there is bipartisan agreement about the negative externalities involved in the market [27]. This is in part due to disagreements over specific elements of state and federal authority and the ability of consumers to seek remedies from courts in cases of violations. It is likely also due in part to a powerful industry interest group that is effective in communicating their concerns of a distortionary regulatory standard [28]. There is little reason to believe that this same interest group would be ineffective in opposing a tax on their core business model. Indeed, the US has been particularly opposed to DSTs imposed by other countries that disproportionately impact US tech platforms. However, a tax would have some built-in advantages by providing a stable source of revenue, which may appeal to a broader range of legislators.

Second, in industries with high rates of innovation there is a lot of uncertainty about consumer welfare and externalities in the future. Regulation passed today may take a number of years to yield compliance in “privacy on the ground” [29], and the nature of data collection and consumer use may be fundamentally different once the regulation is up and running. Finally, a tax that is intended to reduce a negative externality has an added benefit

of raising revenues for public budgets, creating an added incentive to propose and pass tax policy more expeditiously than traditional legislation.

### Digital Service Taxes in Practice

The comparison of a general tax versus a regulatory policy over data collection and targeted ads makes many assumptions and generalizations about implementation. There are currently many proposed and passed DST policies in the EU, Australia, Asia and US that mimic the taxes modeled in this paper and it is worthwhile to study how these line up. The range of policies that could fall under a broad DST umbrella is large, and this paper will focus on policy that is expressly outside of corporate income taxes in Europe and the state level in the US.

An EU DST proposal failed to pass in 2019, but numerous member states began implementing various taxes on parts of the digital economy in the years following with rates ranging from 1-7.5% [30]. As these became more varied and widespread, the OECD has attempted to organize a joint withdrawal from individual nation tax policies, under the Pillar One and Two Proposals [19]. These proposals impact global tax agreements beyond the digital economy, and one of the main motivations for Pillar One is to tax business activity in the location where their sales and consumers reside. The main critiques of these DSTs (many of which are on-hold as the US and other OECD countries negotiate Pillar One) relate to their impact on international trade flows: these taxes essentially work as tariffs, they are punitive to specific companies and specifically US firms, they distort competition and hurt consumers, and the disparate tax laws are administratively expensive.

In the U.S., many states have proposed DSTs and Maryland passed one in 2021, known as the Maryland Digital Advertising Services Tax. The tax is applied only to entities with at least \$100 million in global gross revenues and applies a 2.5-10% progressive tax to the gross receipts of digital advertisement revenues for services accessed by devices in the state. The Maryland tax is currently being challenged in court, with the main critiques relating to the preemption of this kind of state authority by federal statutes and the discrimination against the digital economy [3]. See Kim and Shanske [3] for a thorough analysis of the Maryland law.

There are some key characteristics of the Maryland tax and many of the European DSTs that are worth comparing to the prior economic analysis. This tax is applied to gross revenues rather than as a unit tax on transactions. This has significant economic and accounting implications. "Emissions" taxation as previously described is a unit tax on either the emissions of production or of the product itself – the amount taxed is directly related to the quantity of goods produced. In environmental policy, where precise emissions data for each factory may be difficult to measure, consumption is often used as a proxy. A government might tax

cigarettes or gas rather than measures of second-hand smoke or gasoline pollution, for example. The DSTs, in contrast, are not unit taxes and are using gross receipts from large digital platforms as a proxy for the negative externalities of targeted advertisement. This is a sharp contrast from a corporate income tax that taxes profits. Low-margin businesses would be disproportionately impacted by gross receipts taxes, though that won't often apply to entrenched zero-marginal cost tech platforms. In addition, gross receipts taxes are difficult to avoid through profit or expense shifting. Finally, monopolies may not pass the burden of a gross receipts tax to consumers as readily as they might a unit tax.

### Conclusion

Digital platforms bring enormous welfare benefits and have enabled the rise of novel digital services free of charge to consumers aside from somewhat ubiquitous data collection. The ad-based revenue model creates negative social costs by way of privacy violations, harms to mental health and the spread of misinformation. As policymakers have struggled to craft and pass legislation to address these social harms in the United States, there is good reason to consider a tax policy alternative to diminish the negative externalities associated with this market.

A digital data collection/advertising tax offers advantages over traditional regulation of information markets. While it would likely be regressive and be passed in part on to consumers, so would regulations that limit the availability of low-to-no-fee services. Taxes can be more efficient in markets with heterogenous firms and opaque production processes, and where the risk of government failure (whether from stasis, capture or administrative difficulties) is high. Taxes can also avoid high compliance costs that often favor incumbent firms.

Dominant US tech platforms have opposed DSTs passed in Europe, Australia and Asia and more recently in the state of Maryland. No doubt they would apply massive pressure to oppose a federal digital advertising tax as well. Their critiques of these disparate taxes are well-founded; gross receipt taxes can be distortionary, regressive, targeted and inefficient. If markets based on mass consumer data collection were perfectly efficient, companies would have sound footing to argue against these policies en masse. However, in the presence of market failures and a prolonged period of legislative stasis, these imperfect tax policies can serve to mitigate some of the worst social costs of the digital economy without stifling the innovations and welfare gains that accompany it.

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DOI: [10.19080/ASM.2023.09.555751](https://doi.org/10.19080/ASM.2023.09.555751)

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