Exploring Innovative Tax Policies for the Digital Economy: A Comparative Analysis of Data Resource Tax and Digital Service Tax

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Abstract—**With the rapid development of the digital economy, there is increasing attention on innovative tax policies for the digital economy. This study provides a detailed description of the concepts, collection methods, and current practices of data resource tax (DRT) and digital service tax (DST) through comparative research, revealing their advantages, disadvantages, potential impacts, and implementation challenges. Based on the characteristics of the digital economy and the practical experience of innovative tax policies, the study suggests that the design of innovative tax policies for the digital economy should have a deep understanding of tax base theory and the principle of taxability, adhere to legislative transparency and regulatory principles, and consider efficiency, fairness, and social justice principles in a comprehensive manner. It is recommended that China adopt a differentiated tax rate system and timely update the tax framework, strengthen international cooperation and experience sharing, pay attention to the impact of innovative tax policies on small and medium-sized enterprises, and establish a linkage mechanism between tax policies and administration.**

Index Terms—**innovative tax policies; digital economy; data resource tax; digital service tax**

I INTRODUCTION

According to authoritative statistics from the China Academy of Information and Communications Technology (CAICT) and other relevant institutions, the scale of China's digital economy reached 50.2 trillion RMB in 2022, firmly ranking second globally. Its share of GDP increased to 41.5%, solidifying the digital economy as a critical driver of China's economic growth. With the rapid expansion of the digital economy, globalization, digitalization, and platformization have become dominant trends, posing unprecedented challenges to traditional taxation systems. Issues such as cross-border transactions, data flows, and tax base erosion have made it increasingly difficult for conventional tax frameworks to effectively cover emerging business models and new forms of economic activity within the digital economy. The development of the digital economy has introduced several complexities, such as dispersed taxpayers, ambiguous taxable objects, and intricate tax bases. These issues have created uncertainties regarding tax categories, tax rates, and profit allocation, thereby hindering the ability of traditional tax systems to effectively address fundamental elements such as taxpayer identification, taxable objects, and tax collection methods (Ting and Gray, 2019; Xiao and Yang, 2022). Moreover, the cross-regional and cross-border nature of digital services has complicated the determination of tax jurisdictions and tax rights, exacerbating tax base erosion and profit shifting (Hongler, 2019; He and Chen, 2019). The diverse forms of digital product and service transactions—ranging from virtual currencies and blockchain technology to cross-border e-commerce—further complicate tax administration. Traditional tax enforcement mechanisms often struggle to accurately monitor and identify these complex and rapidly evolving transactions. Additionally, tax enforcement is frequently constrained by national borders, making it challenging to effectively regulate and collect taxes on cross-border digital transactions (Hu et al., 2019).

Against this backdrop, it is imperative to explore innovative taxation policies for the digital economy. The primary goal of innovative taxation policies for the digital economy is to accurately capture the value created by digital activities and promote tax equity and resource allocation efficiency through well-designed tax mechanisms. Their formulation and implementation are critical for advancing the development of the digital economy, enhancing innovation capacity, and improving international competitiveness.

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In December 2022, the Chinese government issued the Opinions on Establishing a Data Basic System, highlighting its strategic emphasis on data resources and leadership in advancing the digital economy. The recent drafting of the Three-Year Action Plan for ″Data Factors ×″ (2024−2026) seeks to harness data's multiplier effects and address key policy challenges.

Tax policies play a crucial role in the development of the digital economy. However, the intangible and virtual nature of data and digital services, their strong non-rivalry, value uncertainty, and increasing marginal returns, present unique challenges for improving tax administration in data-related fields. These complexities make the design of tax policies both intricate and demanding (Cai et al., 2022).

Data Resource Tax (DRT) and Digital Service Tax (DST) have emerged as representative examples of innovative taxation policies in the digital economy. However, both policies have encountered significant resistance and challenges in their adoption and implementation. Despite widespread discussions on the Data Resource Tax, no country has yet fully implemented it. Meanwhile, although the Digital Service Tax has been introduced in several countries, it has often been quickly suspended or de-emphasized. This raises several critical questions: What are the underlying reasons behind these challenges? How do DRT and DST differ in terms of theoretical foundations, taxable objects, tax rate design, and international coordination? More importantly, what insights can these explorations provide for the design of innovative taxation policies in China's digital economy? By conducting an in-depth analysis and comparison of the conceptual definitions, advantages, disadvantages, and practical applications of DRT and DST, this study aims to explore the theoretical underpinnings and practical principles of innovative taxation policies in the digital economy. The findings seek to provide valuable guidance for policymakers in designing taxation models that are tailored to the development of the digital economy. Furthermore, this research offers insights into addressing the challenges posed by the digital economy and supporting its sustainable and robust growth. These efforts will contribute to the innovation of tax systems and provide references for policymakers to develop new taxation models and policies suited to the evolving dynamics of the digital economy.

Ⅱ.DATA RESOURCE TAX

2.1 Definition and Characteristics of Data Resources

Data refers to symbols that record objective facts and contain useful information, including text, numbers, graphics, images, audio, and video. Based on their sources, data can be categorized into three main types: individual data, public data, and enterprise data (behavioral interaction data) (Lu et al., 2022; Wang et al., 2023). Individual data refers to information that can identify consumers, such as names, birth dates, ID numbers, addresses, and phone numbers. Public data includes freely accessible data, such as social and natural public data, which can be collected through recording or lawful web scraping. Public data is often used for statistical analysis, market research, and public services. Enterprise data (behavioral interaction data) refers to data generated by platform enterprises through consumer-platform interactions, such as search behaviors, transaction records, and social group data. This data is widely used for personalized recommendations, precision marketing, and user profiling. Digital platforms, supported by digital technologies, act as infrastructure to facilitate interactions between platforms and users. Platforms collect and store data during user interactions, particularly behavioral data, which is then processed into digital goods for exchange or sale. This forms the foundation of data-driven capital accumulation in platform economies (Chu, 2023).

Data resources refer to various data assets generated within the digital economy. In the information society, data resources exhibit unique characteristics. First, data resources have immense value-creation potential. As a core element of the digital economy, data, when analyzed intelligently, reveals valuable insights that support technological innovation, corporate decision-making, and personalized value-added services. This significantly enhances social benefits and economic efficiency (Azcoitia and Laoutaris, 2022). Second, data resources are replicable and non-rivalrous. Unlike traditional tangible assets, data can be easily replicated and shared without diminishing the value of the original data. This inherent scalability and utilization

potential render data resources virtually limitless (Cai et al., 2022). Finally, data resources possess potential monopolistic characteristics. Their acquisition and processing require considerable technological and financial investments, allowing a small number of large data holders to dominate access to data resources. This can lead to market imbalances and information asymmetries, restricting other participants' ability to access and utilize data. Such monopolization exacerbates economic inequality and hampers fair competition. Understanding the definition and characteristics of data resources is crucial for designing and implementing effective data resource tax policies.

2.2 Concept and Objectives of the Data Resource Tax

The Data Resource Tax (DRT), or "data tax," is a new form of taxation specifically designed for the digital economy and the unique characteristics of data. It targets the value or revenue generated by data resources, aiming to ensure their value is fully assessed and taxed, thereby preventing undervaluation or insufficient taxation. The design of the DRT primarily focuses on two elements: the tax base and tax rate. The tax base, or the basis for taxation, can be calculated using two approaches: quantity-based or value-based. The value-based approach can further be divided into value assessment and revenue assessment. Quantity-based taxation has significant drawbacks, as it overlooks differences in data value, hindering the sustainable growth of the digital economy. Current debates center on whether to base taxation on data value or data revenue.

Taxing based on data value involves valuation methods such as the market approach, cost approach, and income approach, which align with the ability-to-pay principle. However, determining the fair value of data is challenging and often inconsistent with general tax principles (Chu, 2023). In contrast, using data revenue as the tax base is more practical despite difficulties in calculating data revenue, such as determining costs in the "revenue minus cost" formula. Given data′s high replicability and negligible collection and storage costs, its marginal cost approaches zero. Thus, using turnover as the tax base for data sales revenue is more appropriate. This design better reflects the characteristics of the digital economy, balancing administrative feasibility and fairness to promote its sustainable development (Deng, 2021; Wang et al., 2021).

As part of the tax system, the DRT generates fiscal revenue for governments to support public services, infrastructure development, and social welfare. It promotes fair competition by reducing market inequalities, encouraging data sharing, and fostering equitable opportunities for participants. Additionally, the DRT regulates the utilization and scale of data resources, striking a balance between their reasonable use and the protection of personal privacy. Furthermore, tax incentives and preferential policies under the DRT can stimulate innovation and technological progress, driving the sustainable development of the digital economy. To sum up, the objectives of the DRT are to design and implement a taxation framework suited to the digital economy, ensuring the proper taxation of data resources, fostering fair competition, regulating data utilization, and advancing the growth of the digital economy.

2.3 Case Analysis of the Data Resource Tax

Currently, no country has explicitly implemented a tax system targeting data resources as a specific taxable object. In China's existing tax system, taxation related to data primarily falls under policies applicable to software services and intangible assets. Depending on the context and application, tax authorities levy taxes on relevant services and products under corresponding tax categories. Specifically, data services in the form of software are taxed as software sales. Additionally, according to tax laws, activities such as data collection, processing, storage, transportation, and retrieval, as well as data transmission through fixed networks, mobile networks, satellites, the internet, or cable television networks, are taxed under value-added tax (VAT). Furthermore, virtual items in online games are classified as intangible assets, and their transfer is taxed according to relevant regulations.

Certain types of data, due to their inherent value, are classified as data assets, making their taxation a key issue in the digital economy. Among these, cryptocurrencies, as the most mature form of digital assets, have received significant attention in global tax discussions. Tax treatment of cryptocurrencies varies across countries, including being classified as digital goods, digital assets, or property (Yang, 2020). For instance, the United States and the United Kingdom classify cryptocurrencies as

assets and regard cryptocurrency transactions as asset exchanges, subjecting transaction profits to capital gains tax, while taxing transaction income as ordinary income. New Zealand treats cryptocurrencies as property and taxes them accordingly. Taxpayers are required to declare cryptocurrency transactions and profits and pay the corresponding taxes. In the European Union, cryptocurrencies are considered special goods or services, primarily involving VAT and are handled under exemptions. South Korea imposes VAT on virtual assets in online games and applies a tiered tax system based on transaction amounts. Some countries also levy other types of taxes on cryptocurrencies, such as transaction taxes and stamp duties.

China, having banned cryptocurrency trading, does not impose taxes on cryptocurrency transactions. Tax policies for cryptocurrencies remain fluid across countries, and more nations may introduce taxation on digital assets in the future. Taxation of data resources is an emerging field, with legislation and practice in most countries still in exploratory stages. While efforts are underway globally to establish comprehensive and systematic tax frameworks for data assets, mature and widely implemented systems have yet to emerge. Several countries and regions are actively exploring ways to better capture the value of data resources in the digital economy, aiming to achieve equitable taxation and efficient resource allocation. Recognizing that data is a critical economic resource, these jurisdictions seek to ensure its proper taxation to facilitate fair use and distribution. Simultaneously, to safeguard privacy and data security, many countries are advancing legislation and regulations in these areas. By integrating taxation and legal measures, they aim to balance economic benefits, privacy protection, and security risks, fostering a stable and trustworthy digital economy.

Although practical cases of data resource taxation remain rare, the concept of a data resource tax is gaining significant attention as a potential mechanism to address issues of value and equity in the digital economy (Jones and Tonetti, 2020; Deng, 2021; Zhao, 2023). The lack of practical implementation highlights challenges such as data valuation, tax standardization, and international cooperation. Greater attention and exploration are needed to develop tax policies and mechanisms that align with the dynamics of the digital economy.

2.4 Advantages and Challenges of the Data Resource Tax

DRT, as an innovative taxation mechanism, offers several significant advantages. First, it promotes equitable taxation and resource allocation by reducing data monopolies and mitigating information asymmetry and benefit concentration. This enhances market competition and fosters balanced and fair economic growth. Additionally, DRT incentivizes governments to establish robust data resource management systems, creating a fair and efficient transactional framework for data contributors and users. The revenue generated from DRT provides critical economic support for infrastructure development and data services, facilitating the efficient circulation and innovative application of data resources. This, in turn, significantly enhances the economic and social utility of data (Jones and Tonetti, 2020). Furthermore, DRT contributes additional fiscal revenue to fund public services such as education, healthcare, and infrastructure, thereby improving social welfare and meeting public needs. Lastly, DRT helps regulate the data market by preventing misuse and abuse of data resources. Through its implementation, governments can optimize data-sharing policies, enhance security management, and ensure fair and legal data transactions. This taxation mechanism strengthens the relationship between governments and markets, safeguarding public interests and data rights while driving high-quality data management and utilization (Zhao, 2023).

Despite its potential benefits, DRT faces several notable challenges. A key issue is the complexity of valuing digital resources. Accurately assessing the value of data is difficult due to the wide variety of data types, as well as differences in their quality, quantity, and application value. These factors complicate the formulation of tax standards and rates, requiring comprehensive consideration to ensure fairness and rationality in taxation (Lu et al., 2022). Another significant challenge lies in data security. Data security is critical for ensuring the efficient circulation and utilization of data. However, the expansion of individual data rights often leads to a "rights-binding dilemma," which hinders the full realization of data value. In the context of privacy protection, both individuals and enterprises increasingly prioritize data security, and concerns over privacy breaches and security incidents reduce their willingness to share data. This limits data circulation and utilization, potentially stifling innovation (Wang et al., 2021). Addressing these concerns requires the establishment of robust data security systems,

the development of privacy-preserving computing technologies, and the clear definition of rights and responsibilities in data transactions.

Cross-border data flows present an additional challenge for DRT implementation. Digital data often exhibits significant cross-border mobility, making taxation complex in terms of international data flows, cross-border legal application, and technical enforcement support. Effective implementation of DRT requires balancing the free flow of data with the need for legitimate protection and fostering international cooperation to prevent trade barriers and disputes. This global collaboration is essential for advancing coordinated and consistent tax systems across jurisdictions. Moreover, DRT may impact innovation and development within the digital economy. Excessive or poorly designed taxation could impose unnecessary burdens on enterprises, discouraging investment, research, and development. This, in turn, could hinder innovation and reduce overall competitiveness (Cai and Ma, 2021). Policymakers must carefully design tax policies to balance revenue generation with economic development goals, incorporating tax incentives to support innovation and sustainable growth. Finally, DRT faces challenges related to technical and regulatory complexity. The tax system must keep pace with rapid advancements in digital technologies to ensure its accuracy and effectiveness. Policymakers must establish clear boundaries and norms for data usage and sharing while addressing the diverse interests of various stakeholders. Flexible and adaptive policies are crucial for ensuring the success of tax reforms and fostering the healthy, sustainable development of the digital economy.

In summary, while the Data Resource Tax offers multiple advantages, its design and implementation require careful consideration of valuation complexities, data security, cross-border issues, and potential impacts on innovation. Policymakers must adopt a balanced and adaptive approach to ensure the effectiveness of DRT and to promote the sustainable development of the digital economy.

Ⅲ   DIGITAL SERVICES TAX

3.1 Definition and Scope of Digital Services

Digital services refer to a wide range of services delivered to users via the internet or other digital platforms, including but not limited to advertising services, e-commerce platforms, online media, software and applications, and cloud computing services. These services are primarily provided and delivered through digital technologies, characterized by their cross-border nature and digital features. Users can access global services and content anytime and anywhere, benefiting from diverse options. Digital services often offer personalized recommendations and experiences based on user interests and behavior, thereby enhancing user satisfaction. Through efficient and convenient online interactions and communications, users can seamlessly engage in online payments and financial management. Furthermore, digital services are elastic and scalable, allowing users to flexibly adjust and expand their usage based on demand, thus improving efficiency and reducing costs.

3.2 Concept and Objectives of the Digital Services Tax

DST, or "digital tax," refers to a levy imposed by a government on economic entities engaged in activities within the digital services sector, such as search engines and social media, provided they meet certain criteria. The core concept of the DST is to tax the revenues generated by digital service providers, thereby capturing the value created within the digital economy and ensuring a fair and efficient distribution of the tax burden. Shao and Yang (2021) argue that the DST is an inevitable outcome of digital economy development, serving as a tool to address the issue wherein large multinational digital enterprises derive significant value from the participation of digital users in a country without paying taxes there. However, some scholars view the DST as a new form of trade barrier in service trade, asserting that it has protectionist effects on domestic products (Zhu, 2021).

3.3 Case Analysis of the Digital Services Tax

To address the tax challenges posed by the digital economy and implement the European Single Digital Market Strategy, the European Union (EU) was the first to propose a comprehensive plan for fair taxation in the digital economy, which included two directives on digital taxation. Specifically, the EU introduced the DST as a short-term solution (referred to as the "DST

Directive") [1]. Under this proposal, a 3% DST would be levied on the total revenues generated by large enterprises from three core digital services: online advertising, digital intermediation, and the sale of user data. This tax aims to address gaps in existing tax systems. To qualify as a taxpayer under the DST, two thresholds must be met: first, the enterprise′s total taxable revenue must exceed €750 million in the relevant fiscal year; second, the taxable revenue generated within the EU must exceed €50 million. This indicates that the EU's DST specifically targets enterprises with a "significant digital presence" within the EU. The tax base for the EU DST is the total revenue generated from digital services, calculated after deducting VAT and similar taxes, but excluding costs or carried-forward losses.

As a long-term solution, the EU proposed the "Significant Digital Presence" (SDP) directive [2]. This directive establishes a framework for taxing multinational enterprises operating digital services in the EU without a physical presence by treating their digital presence as a permanent establishment subject to corporate income tax. The SDP proposal introduces a new nexus rule for digital services in the EU, with criteria for determining "significant digital presence." Enterprises qualify if they meet at least one of the following thresholds in a given tax year: (1) total revenue from digital services provided to users in a specific EU member state exceeds €7 million; (2) the enterprise has more than 100,000 users in that member state; or (3) the number of digital service-related commercial contracts with users in that state exceeds 3,000. Given the slow progress in coordinating international tax rules, France unilaterally introduced its own DST in July 2019, taxing digital enterprises to safeguard its national fiscal interests. From a global perspective, the lack of binding rules on redistributing tax benefits in the digital economy has led to an increase in unilateral reforms driven by national interests (Yue and Qi, 2019). Following France, the United Kingdom, Italy, Turkey, and Spain also implemented DST reforms tailored to their own tax needs. By 2020, emerging economies such as India, Indonesia, and South Africa had also begun taxing digital services.

As of November 2023, over 40 countries and regions worldwide have implemented or announced plans to introduce DSTs. The EU remains the most active region in advancing DST policies, with many other jurisdictions expressing interest or planning to adopt similar measures. However, there are significant structural differences in DSTs across countries, including variations in taxable scope, tax rates, and thresholds (Bai and Yue, 2021). The taxation practices of typical countries with DSTs are summarized in Table 1.

Table 1: Digital Services Tax Collection in Selected Countries

Nation	Implementation Date	Tax Rate	Taxable Scope	Taxpayers
France	2019.01	3%	Revenue from user data transmission for advertising purposes	Large internet companies with global digital revenues over €750 million and domestic revenues exceeding €25 million
Italy	2020.01	3%	Revenue from online advertising and digital interface data transmission	Enterprises with global digital revenues over €750 million and domestic revenues not less than €5.5 million
Austria	2020.01	5%	Revenue from online advertising	Enterprises with global digital revenues over €750 million and domestic revenues reaching €25 million
United Kingdom	2020.04	2%	Social media, search engine, and online marketplace services	Large tech companies with global digital revenues over £500 million and domestic revenues reaching £25 million
India	2016.06	6%	Revenue from online advertising services in India	Equalization levy on business activities with no permanent establishment in India and annual revenues above ₹100,000
	2020.04	2%	Revenue from online sales	Non-resident enterprises with annual sales

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[1] Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services, or "DST Directive"

[2] Directive laying down rules relating to the corporate taxation of a significant digital presence, or "SDP Directive"

Nation	Implementation Date	Tax Rate	Taxable Scope	Taxpayers
			of goods or services in India	exceeding ₹ 20 million; equalization levy expanded to e-commerce
Turkey	2020.03	7.5%	Digital advertising services and digital content services	Companies with global revenues over €750 million and Turkish taxable revenues not less than €20 million
Malaysia	2020.01	6%	Advertising services, digital content services, and online intermediary services	Multinational enterprises with global taxable revenues over €750 million and domestic sales exceeding RM500,000
Singapore	2020.01	6%	Advertising services and digital content services	Multinational enterprises with global taxable revenues over SGD 1 million and domestic taxable revenues exceeding SGD 100,000

Source: Compiled from publicly available information.

The development of DST globally remains in its early stages, and its future trajectory remains uncertain. The unilateral implementation of DST, without relying on international coordination or global consensus, risks creating tax inequities and imbalances. Furthermore, such actions may trigger international trade disputes and tax competition, as other countries could retaliate with protective measures to safeguard their domestic digital service providers. Effective taxation also requires precise tracking and monitoring of digital service providers' transactions and revenues. The lack of international collaboration could lead to significant challenges in the enforcement and compliance of DST policies. The dispute over DST between the United States and the European Union persisted for years. In October 2021, the U.S. reached a compromise with France, Austria, Italy, Spain, and the United Kingdom. Under the agreement, these five European countries committed to abolishing their DST once the international tax reform agreement promoted by the Organisation for Economic Co-operation and Development (OECD) comes into effect. In return, the U.S. agreed to withdraw its planned retaliatory tariffs against these countries.

On July 12, 2023, after extensive negotiations, the OECD announced that 138 countries and jurisdictions had agreed to extend the moratorium on new DST measures by another year, postponing their implementation until December 31, 2024. During this period, efforts will continue to draft a Multilateral Convention (MLC) to implement the first pillar of the OECD's two-pillar solution. Participating countries also pledged to abolish existing DST measures and similar unilateral actions once the first pillar is enacted, provided sufficient progress is made in signing the MLC by the end of 2023[3]. This demonstrates that countries increasingly recognize the importance of global reform in digital taxation and express willingness to address the challenges of taxing the digital economy through multilateral agreements.

3.4 Advantages and Challenges of the Digital Services Tax

The DST introduces a novel fiscal mechanism to address the taxation challenges posed by multinational digital enterprises, aiming to adapt to the rapid evolution of the digital economy. While the DST presents several distinct advantages, it is not without significant challenges. A key advantage of the DST lies in its potential to enhance tax equity, which constitutes its primary objective. Under the current international tax framework, substantial value generated by digital consumption is predominantly captured by digital enterprises, resulting in a disconnect between the location of profit taxation and value creation. This misalignment undermines the equitable distribution of tax burdens and diminishes public interests. Moreover, large multinational digital firms, due to their structural advantages in digital markets, often escape effective taxation under traditional systems. Compared to traditional industries, digital enterprises typically face lower tax burdens, with multinational corporations enjoying greater opportunities for tax avoidance relative to domestic firms. The DST, by taxing the revenues of digital service providers, seeks to address these deficiencies in the traditional tax regime. Furthermore, the DST explicitly considers the substantial value that digital users contribute to the operations of internet companies, thereby promoting the equitable redistribution of revenues generated by multinational digital enterprises. For jurisdictions implementing the DST,

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[3] OECD Outcome Statement, July 2023. https://www.oecd.org/tax/beps/outcome-statement-on-the-two-pillar-solution-to-address-the-tax-challenges-arising-from-the-digitalisation-of-the-economy-july-2023.htm

the tax offers an additional source of fiscal revenue to support public expenditures, enhance social welfare, and stimulate economic development.

However, the implementation of the DST encounters significant challenges that have, in some cases, led to its suspension. First, the issue of tax incidence shifting undermines the effectiveness of the DST in achieving its intended objectives (Russo, 2019). Dominant digital enterprises, leveraging their market power, may transfer the tax burden to consumers or business clients by raising service prices or fees. This practice compromises the principle of tax fairness and reduces the actual fiscal burden borne by the enterprises themselves. Second, the DST increases operational costs for businesses, distorts corporate decision-making, and may inhibit innovation (Devereux & Vella, 2018; Lassmann et al., 2020). Firms subject to the DST are likely to incur higher transaction costs and prioritize tax considerations in their strategic decisions, potentially diminishing their capacity for innovation and reducing their overall market competitiveness. Additionally, the revenue-based taxation model of the DST presents inherent inequities for low-margin or loss-making businesses. This approach disregards profitability and may lead to double taxation, thereby exacerbating the financial burden on affected firms (Klein et al., 2022). Most critically, the DST is prone to triggering trade disputes. Divergent national interests regarding digital taxation create tensions that may escalate into protectionist policies, further complicating global trade relations (Zhu, 2021).

In conclusion, while the DST offers a framework to address base erosion and profit shifting (BEPS) and provides an additional revenue source for implementing jurisdictions, it is constrained by significant challenges, including tax incidence shifting, heightened corporate costs, risks of double taxation, and the potential for trade conflict. These limitations underscore the need for coordinated international solutions to the taxation challenges of the digital economy.

IV.COMPARATIVE STUDY OF DRT AND DST

4.1 Fundamental Differences Between DRT and DST

The primary distinctions between the DRT and the DST lie in their policy objectives, taxable entities, scope, and taxation methods. First, the policy objectives differ. The DRT focuses on ensuring value return and promoting the sharing of data resources, while the DST primarily addresses issues related to tax base erosion, profit shifting in cross-border digital services, and generating tax revenue from emerging economic sectors. The objective of the DRT is to facilitate the efficient utilization, protection, and sustainable development of data resources, thereby fostering a healthy data economy. In contrast, the DST aims to resolve the inequities of user value underrepresentation and tax disparity in the digital economy, while bridging the tax gap between traditional enterprises and digital economy businesses. Ultimately, the DST seeks to achieve balanced development between the digital and traditional economies. Second, the taxable entities differ. The DRT targets the acquisition, utilization, or transaction of data resources and can be imposed on providers, users, or participants in these transactions. On the other hand, the DST is levied on specific digital services provided by digital enterprises, such as online advertising, e-commerce platforms, and cloud computing services. Third, the scope of taxation varies. The DRT typically has a broader scope, encompassing a wide range of activities related to the production and use of digital resources, including data collection, processing, and transactions; the creation and dissemination of digital content; and the operation and utilization of digital platforms. In contrast, the DST's scope is generally narrower, limited to specific types of digital services, excluding many other forms of digital resources from direct taxation. Fundamentally, the DST could be considered a modified form of the DRT (Xie, 2023). Finally, the methods of taxation differ. The DRT employs both direct and indirect taxation methods. Its tax rates are determined based on factors such as the type, value, and usage of data resources, with specific implementation varying by country. In contrast, the DST typically adopts a direct taxation approach, imposing taxes directly on digital service providers. The DST usually applies a fixed rate or percentage to the revenues or transaction volumes generated from digital services to calculate the tax amount.

4.2 Comparative Economic Effects on the Digital Economy

The design objectives of the DRT and the DST differ significantly, leading to notable disparities in their potential economic effects. The introduction of the DRT aims to regulate the functioning of data markets and the broader data economy. Its potential effects include optimizing the utilization of data resources, fostering innovation and competition, and increasing government tax revenues. The DRT incentivizes data holders to manage and utilize data resources more efficiently, thereby improving the overall efficiency of data resource utilization. Additionally, the presence of taxation encourages market participants to develop more competitive data products and services, driving technological innovation and progress. However, the DRT may also generate adverse effects. The imposition of taxes could reduce the willingness of businesses and individuals to invest in data and innovation, potentially exacerbating data barriers and hindering data sharing and interoperability. Furthermore, the taxation process may lead to inequality in income and distribution, resulting in an inequitable allocation of data resources and unfair market competition. The DRT could also disrupt the competitive dynamics of various industries, potentially causing imbalances and undermining fair competition and resource allocation efficiency in the market.

In contrast, the DST primarily focuses on the tax burden of digital service providers and its implications for resource allocation. Its potential impacts include ensuring fair tax sharing and optimizing resource allocation. The DST enables digital service providers to contribute taxes based on the principle of revenue contribution, reducing profit shifting and tax avoidance behaviors, thereby promoting equitable tax distribution. The tax burden may also incentivize digital service providers to better manage and optimize their business models, enhancing resource allocation efficiency and fostering innovation and competition. The DST also generates significant fiscal revenues for governments. For instance, according to data released by the French Ministry of Finance, since the DST's introduction in 2020, it has provided France with a steady increase in tax revenues. These additional revenues can be allocated to public services and infrastructure development.

Nevertheless, the DST is not without its challenges. First, designing and implementing the DST involves overcoming the complexities of defining tax standards. Given the diversity and complexity of digital services, significant disparities in tax rates and thresholds exist among countries currently imposing the DST, perpetuating issues of tax inequity. Second, the issue of tax incidence shifting undermines the DST's intended purpose. Large multinational digital enterprises often transfer the tax burden to application developers, advertisers, and third-party sellers by raising costs. While a few platforms have opted to absorb the costs themselves, achieving equitable tax distribution remains challenging. Third, as the DST taxes revenues rather than net income, it disproportionately affects low-margin or loss-making enterprises, leading to fairness concerns and the risk of double taxation, thereby increasing the financial burden on businesses. Finally, disputes over the DST often involve conflicting national interests, making it prone to triggering trade conflicts that could hinder the development of the digital economy. The struggle for influence over international tax rules has further complicated matters. For example, the United States unilaterally withdrew from OECD-led negotiations on digital taxation, causing delays in reaching a consensus. Such unilateral approaches to the DST may create a ripple effect, encouraging other countries to follow suit. This could negatively impact major players in the digital economy, particularly China, exacerbating tax inequities and trade tensions.

4.3 Implementation Challenges: Collection Issues and Solutions

The implementation challenges of the DRT primarily involve data valuation, cross-border data flows, and compliance and regulation. In terms of data valuation, governments must develop appropriate methodologies and tools to accurately assess the value of data resources, avoiding subjective evaluations and disputes. For cross-border data flows, international cooperation is essential to establish coordinated mechanisms and policies to prevent double taxation and conflicts. Ensuring compliance with tax regulations and reporting requirements is another significant challenge, requiring governments to establish effective regulatory frameworks, strengthen compliance audits, and provide taxpayer education. The successful enforcement of the DRT demands robust national legislation, regulatory oversight, and enforcement capabilities to ensure effective tax collection and adherence to the rules. The DST faces distinct challenges, including cross-border tax coordination, data collection and analysis, and tax base determination. Cross-border coordination requires collaboration and negotiation with other nations to avoid double taxation and disputes. The DST also necessitates substantial data collection and analysis to identify taxable entities and

determine applicable rates, requiring significant government investment in resources and technology to ensure accuracy and fairness in taxation. Tax base determination, as a core issue of the DST, requires clear rules and guidance to ensure digital service providers pay taxes commensurate with the value they generate in local markets, ideally through an internationally agreed tax reform framework. Both the DRT and DST share common implementation challenges.

In terms of collection, both taxes require clear standards and calculation methods. However, the diversity and complexity of data resources and the cross-border nature of digital services make establishing unified tax standards a formidable task. A potential solution is to involve multiple stakeholders, including governments, enterprises, academia, and the public, to collaboratively develop fair and transparent tax standards. Differentiated tax models may also be employed to reflect the varying value and contributions of different types of data and digital services. Additionally, successful implementation of both taxes necessitates enhanced tax regulations, investment in digital tax administration infrastructure, and the development of advanced tools to improve tax collection capacities in the digital economy. International cooperation and coordination are equally critical, requiring the establishment of a global tax framework or multilateral agreements to jointly address cross-border taxation challenges.

Ⅴ .THEORETICAAL FOUNDATIONS AND PRATICAL PRINCIPLES OF INNOVATIVES TAX POLICISES

Designing effective tax policies for the digital economy is a key challenge for governments and scholars. The intangible and cross-border nature of data assets and digital services requires rethinking traditional tax principles. A fair and balanced tax system relies on understanding the digital economy's unique features and aligning policies with sound theoretical and practical frameworks.

5.1 Tax Base Theory and the Principle of Taxability

The design of innovative tax policies for the digital economy must be grounded in a thorough understanding of its tax base. The tax base refers to the scope and definition of taxable economic activities or assets, while the principle of taxability emphasizes that taxable income or activities must be identifiable and measurable. Accurately defining the tax base for data resources, digital products, digital services, and e-commerce transactions is fundamental to formulating effective tax policies. The intangible and borderless nature of the digital economy introduces significant uncertainties into policymaking and enforcement. Data and digital services are inherently intangible, making it difficult to quantify their economic value and establish fair tax boundaries. Digital products can easily cross borders, complicating the identification of taxable entities. Informal data transactions are hard to track, limiting comprehensive tax enforcement. The diversity of digital products and services, along with their classification challenges, hinders integration with existing tax systems. Furthermore, the fluctuating value of digital assets and the difficulty in encouraging data sharing or recognizing public goods contributions create additional obstacles. To address these challenges, a systematic and comprehensive tax base classification framework must be developed, providing detailed definitions of economic types within subsectors such as data resources and digital services. Data resource taxes primarily focus on the circulation and use of data, while digital services taxes target service providers, addressing only selective aspects of the digital economy. A comprehensive tax policy requires detailed classifications, clear definitions of taxable entities, and measures to avoid overlapping taxation. Given the dynamic nature of the digital economy, the tax base must be continuously revised. Establishing a flexible and responsive feedback mechanism is essential to adapt to evolving digital boundaries, ensuring tax policies remain relevant and effective.

5.2 Legislative Transparency and Regulatory Principles

The digital economy encompasses diverse business models and technologies, making it challenging to clearly define relevant concepts and rules in legal texts. Its rapid evolution often outpaces legislative processes, resulting in gaps between policy implementation and innovation. Furthermore, the cross-border nature of digital economy activities and operations complicates the development of tax policies, requiring consideration of international legal frameworks and cooperation

mechanisms. However, differences in legal systems, conflicting interests, and policy disparities among nations often hinder legislative transparency and consistency in enforceability. Legislative transparency and regulatory principles are essential for ensuring fairness, reasonableness, and practicality in digital economy tax policy. Legislative transparency requires that tax policymaking processes be open and inclusive, incorporating input from relevant stakeholders. Transparent procedures should define clear legislative objectives, scope, and principles. Policymakers should engage in public discussions, solicit feedback through consultations and hearings, and maintain open communication with stakeholders to enhance the acceptability and effectiveness of tax policies. The regulatory principle emphasizes that tax policies must account for the characteristics and innovative nature of the digital economy and adapt to its rapid development. Given the fast-paced innovation and diverse business models within the digital economy, tax policies should be flexible and adaptive to address emerging trends and changes. Legislators must closely monitor technological advancements and market dynamics, revising tax policies as needed to ensure they remain relevant and effective. Regulatory tax policies can foster innovation, provide a stable tax environment, and encourage investment and entrepreneurship in the digital economy.

5.3 Balancing Efficiency, Equity, and Social Justice Principles

The design of innovative tax policies for the digital economy should adhere to the principles of efficiency, equity, and social justice. These principles aim to promote digital economic growth, ensure a fair tax system, and maximize societal benefits by considering the unique characteristics of the digital economy, market demands, public interests, and long-term economic development goals. Pursuing efficiency involves optimizing the tax system to minimize its impact on the digital economy while fostering innovation and investment. This can be achieved by simplifying tax procedures, reducing tax burdens, eliminating barriers, and offering incentives. Improved tax efficiency enables digital economy enterprises to allocate resources more effectively, lower operational costs, and drive economic growth and job creation. The principle of equity requires a fair and reasonable distribution of tax obligations. Establishing equitable tax benchmarks, preventing the misuse of tax incentives, combating tax evasion, and reducing disparities in tax treatment ensure that both individuals and businesses contribute based on their capacity. A fair taxation system strengthens public trust, enhances social cohesion, and promotes stability. Social justice demands that tax policies address income inequality and promote inclusivity. This involves increasing the tax burden on high-income groups and monopolistic enterprises while easing the burden on low-income individuals and small businesses. Additionally, the effective use of tax revenues is vital for advancing social welfare. Tax income should support vulnerable groups, fund public services, and foster sustainable development, contributing to overall societal prosperity and progress. Ultimately, innovative tax policies for the digital economy should go beyond the traditional function of revenue collection. They should focus on capturing the new value created by the digital economy, restoring horizontal tax equity, adhering to the principle of ability-to-pay taxation, and achieving a balanced tax burden between digital and traditional enterprises.

Ⅵ.REFLECTIONS AND INSIGHTS

Future tax policies for the digital economy and data resources are expected to diversify. Beyond commonly discussed data resource and digital services taxes, new forms such as digital value-added tax, digital consumption tax, data privacy tax, and digital currency tax are likely to emerge. Integrating data resource and digital services taxes is a potential direction, allowing for a comprehensive framework that considers the value and flow of data as well as the supply and consumption of digital services. This requires clear tax standards, calculation methods, and collection mechanisms, ensuring equitable burden distribution and efficient revenue utilization. Although still in its early stages, China's digital economy tax system is advancing, with future policies expected to focus on data-driven approaches. These may include taxation based on data value, regulation of data markets, and measures addressing data privacy.

Key insights from the exploration of innovative tax policies include:

(1) Differentiated Tax Rates and Dynamic Updates: Establishing tiered tax rates tailored to industries and activities can align taxes with actual contributions, enhancing efficiency and reducing avoidance. Regular updates to tax frameworks are essential to adapt to emerging industries and economic models.

(2) Global Cooperation: International collaboration is critical to addressing tax challenges, minimizing harmful competition, and establishing fair distribution standards. Sharing best practices and developing unified frameworks for digital taxation will enhance global coordination, with China positioned to play a leading role.

(3) Support for SMEs: While current digital taxes target large corporations, future policies must consider SMEs. Tax incentives, such as exemptions or support funds, can alleviate burdens, promote innovation, and encourage SME participation in the digital economy.

(4) Policy-Administration Integration: A coordinated mechanism linking tax policies with administrative processes is vital. This includes transparent communication, effective data exchange, monitoring systems, and feedback channels. Leveraging technologies like fintech and blockchain can enhance efficiency, reduce costs, and ensure effective enforcement.

In conclusion, digital economy tax policies must go beyond traditional revenue collection, focusing on capturing new value, ensuring fairness, and balancing tax burdens across digital and traditional enterprises, while fostering innovation and inclusivity.

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