

RESEARCH ON TAX CHALLENGES AND POLICY RESPONSES IN THE ERA OF DIGITAL ECONOMY

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Abstract: This paper aims to explore the challenges posed by the digital economy to the tax system and its corresponding policy responses. Through a review of relevant literature and theoretical analysis, the study finds that the intangibility, global nature, and liquidity of the digital economy have profound impacts on traditional tax systems, leading to issues such as base erosion and profit shifting, which in turn affect tax revenues and the distribution of social wealth in various countries. In response to these challenges, governments have begun to adopt innovative tax policies, such as the Digital Services Tax (DST), although its implementation faces difficulties in international coordination. At the same time, tax authorities need to enhance their digital management capabilities and utilize new technologies to improve the efficiency of tax collection and administration. The study shows that policymakers need to find a balance between the flexibility and stability of tax policies and strengthen international cooperation to achieve tax equity and sustainable economic development.

Keywords: Digital economy; Tax system; Base erosion; Profit shifting; Policy response; Digital Services Tax; International cooperation

1 INTRODUCTION

With the rapid development of the digital economy, the global economic structure is undergoing profound changes. The digital economy not only encompasses emerging fields such as e-commerce, online services, and social media, but also includes technological innovations such as data analysis, artificial intelligence, and cloud computing. These changes have promoted rapid economic growth and improved the efficiency of resource allocation, but they also pose unprecedented challenges to traditional tax systems. Characteristics of the digital economy, such as intangibility, globalization, and immediacy, make it difficult for current tax systems to respond effectively, leading to intensified issues of base erosion and profit shifting [1].

Currently, many countries face the risk of declining tax revenues, closely linked to the rapid development of the digital economy. Internet companies often reduce their taxable income in various countries through multinational operations and complex tax planning, thereby impacting the fairness of taxation across nations. For example, some large technology companies can concentrate income in countries with lower tax rates through profit shifting, undermining the tax bases of other nations and causing severe tax revenue losses [2]. This not only affects government fiscal revenues but also exacerbates social wealth inequality and weakens public trust in the tax system.

In the face of these challenges, governments around the world have begun to take action, attempting to adjust tax policies to accommodate the development of the digital economy. Some countries have started to explore new tax mechanisms, such as the Digital Services Tax (DST), to directly target specific services and activities within the digital economy [3]. However, the implementation of these policies still faces numerous challenges, including difficulties in international coordination, the complexity of tax compliance, and potential trade frictions. Therefore, how to effectively reform taxation within a globalized context has become an urgent issue. Similar to the blended teaching model in medical education, the rapid development of the digital economy also prompts us to re-examine the integration of existing education and tax system reforms [4].

This study aims to systematically explore the tax challenges brought about by the digital economy and analyze corresponding policy response strategies. By delving into the characteristics of the digital economy, this paper will reveal its specific impacts on traditional tax systems and propose practical policy recommendations to promote the innovation and development of tax systems. The significance of the research lies in providing theoretical support for policymakers while also establishing a foundation for the academic community to discuss the relationship between the digital economy and tax policy in depth.

2 LITERATURE REVIEW

Against the backdrop of the rapid development of the digital economy, academic research on its impact on taxation has gradually increased. Existing literature mainly focuses on three aspects: the definition and characteristics of the digital economy, the specific manifestations of tax challenges, and the responses and policy measures adopted by various countries.

First, regarding the definition of the digital economy, scholars generally agree that its main characteristics include intangibility, globalization, and technology-driven elements [5-6]. The digital economy encompasses not only online transactions and e-commerce but also the generation, storage, and analysis of data. According to the OECD (Organization for Economic Cooperation and Development), the digital economy is defined as "economic activities based on digital technologies, encompassing all stages from production to consumption" [7]. The rise of this economic

form has greatly enhanced productivity and driven innovation, becoming a new engine for economic growth. This emergence has not only propelled productivity but has also introduced new stressors, akin to the emphasis on patient psychological states in clinical nursing interventions [8]. However, as the digital economy expands, traditional tax systems face severe challenges. Additionally, the development of the digital economy is similar to the relationship in traditional healthcare between disease classification and the importance of data in decision-making [9].

Second, tax challenges are primarily manifested in issues such as base erosion and profit shifting (BEPS). Numerous studies indicate that digital enterprises can transfer profits to low-tax countries through multinational operations and the flexibility of digitalized operations, thereby reducing taxable income in other countries [10]. For example, certain tech giants establish subsidiaries in high-tax countries while concentrating their operations and revenues in low-tax jurisdictions, leading to tax revenue losses. A 2019 OECD report estimated that global tax losses due to profit shifting range from \$100 billion to \$240 billion, a phenomenon that has become increasingly serious in the digital economy environment [11]. Through case analysis, researchers have illustrated the specific manifestations of these challenges, revealing the impact of the digital economy on tax equity and the stability of tax systems. This phenomenon of tax revenue loss can be compared to the precision treatment methods targeting specific patients in modern medicine, emphasizing the necessity of targeted policies [12].

In terms of the specific manifestations of tax challenges, the intangible asset characteristics of the digital economy mean that enterprises' value creation no longer relies on tangible assets, making traditional tax collection methods ineffective in capturing and assessing economic activities. This shift poses difficulties for governments in determining companies' tax obligations, particularly in multinational operations where the reasonable allocation of tax bases and responsibilities among countries becomes crucial. Scholars have pointed out that many business models in the digital economy, such as platform and sharing economies, further complicate this issue [13]. Since these enterprises often do not establish physical presence in the countries where users are located, traditional "permanent establishment" standards become ineffective in the digital economy, posing significant collection challenges for tax authorities.

Additionally, existing literature has systematically reviewed and analyzed the tax policy responses adopted by various countries in the face of the digital economy. Some countries have implemented innovative tax mechanisms, including the Digital Services Tax (DST), to directly counteract tax losses induced by the digital economy. The DST typically targets specific digital services, such as advertising revenues from social media platforms and sales of digital content, aiming to ensure that these enterprises bear a reasonable tax burden in the countries where they operate. For example, France implemented a Digital Services Tax in 2019, being the first in Europe to tax large tech companies, which garnered widespread attention. Related studies indicate that this measure initially generated some fiscal revenue but also sparked international trade frictions, especially with the United States threatening retaliatory tariffs against France [14]. At the same time, other countries such as the UK and Italy are also exploring similar policies, attempting to ensure tax fairness and reasonableness without violating international trade rules. However, the implementation of these policies still faces numerous challenges, particularly in terms of international coordination and cooperation. Literature points out that policies from individual countries often encounter external resistance, leading to potential trade frictions. Thus, how to achieve consensus at the international level and formulate consistent tax policies has become an important issue in addressing the tax problems posed by the digital economy [15].

Regarding tax policies in the era of the digital economy, scholars have also proposed several recommendations, emphasizing the need to consider equity, efficiency, and operability comprehensively when formulating tax policies [16]. Policymakers must find a balance between the flexibility and stability of tax policies to respond to the rapidly changing economic environment. Furthermore, the fast-paced development of the digital economy requires tax authorities to enhance their capabilities and improve the digitization of tax management, utilizing big data and artificial intelligence for precise taxation and monitoring.

Overall, while current research provides a foundation for understanding the relationship between the digital economy and taxation, there are still certain limitations. On one hand, empirical research on the impact of the digital economy is relatively scarce, with existing studies primarily focused on theoretical discussions. On the other hand, in-depth discussions on how to effectively address these challenges through policy are still insufficient. Therefore, this paper will further explore the specific impacts of the digital economy on traditional tax systems in the subsequent theoretical analysis section and propose corresponding policy recommendations to facilitate the innovation and development of tax systems.

3 THEORETICAL ANALYSIS

The rise of the digital economy has profound implications for traditional tax systems, primarily manifested in several aspects: the intangibility of income, the globalization of economic activities, the liquidity of tax bases, and the complexity of tax collection and administration. These factors collectively constitute the main challenges that the digital economy poses to taxation, forcing governments and policymakers to reassess existing tax policies.

First, the intangible asset characteristics of the digital economy have altered the way companies create value. In the traditional economy, a company's value often relies on tangible assets, such as factories, equipment, and inventories. In contrast, in the digital economy, intangible assets like brands, data, and technology have become the primary sources of value. This shift means that many digital enterprises no longer depend on fixed physical facilities, making traditional tax systems ineffective in accurately measuring and collecting taxes. The pricing and valuation of intangible assets are highly dependent on market conditions and corporate strategies, presenting numerous uncertainties and challenges for

tax authorities in determining taxable income. This phenomenon enables companies to employ profit shifting and other strategies to reduce their tax obligations in high-tax jurisdictions.

Second, the global nature of the digital economy allows multinational enterprises to operate and profit across multiple jurisdictions. This globalization provides companies with greater flexibility in choosing tax strategies, enabling them to easily exploit differences in tax systems across countries. Many scholars have pointed out that enterprises in the digital economy often lack a physical presence in high-tax countries, rendering traditional "permanent establishment" standards inapplicable, thereby affecting tax equity and efficiency. Research has found that multinational companies shift profits by establishing subsidiaries in low-tax countries, leading to tax avoidance in other jurisdictions. This phenomenon not only results in tax revenue losses but also intensifies tax competition among nations, creating a situation often referred to as "tax wars."

Third, the liquidity of tax bases further exacerbates the complexity of tax collection and administration. In the digital economy, companies can rapidly relocate their economic activities to different countries or regions, and this high liquidity makes it difficult for tax authorities to track and collect taxes. Particularly in transactions involving data and services, many companies' economic activities do not rely on specific physical locations but are conducted via the internet and digital platforms, rendering traditional tax management methods inadequate. Governments must consider how to ensure tax fairness while avoiding excessive interference in business activities that could lead to adverse economic impacts.

Fourth, the rapid changes within the digital economy necessitate corresponding adjustments in technology and management by tax authorities. To effectively address the challenges posed by the digital economy, tax authorities need to enhance their digital capabilities, utilizing big data analysis and artificial intelligence to improve tax collection and administration. Through technological means, tax authorities can achieve more efficient tax monitoring and collection, thereby increasing tax compliance rates. For example, some countries have begun employing blockchain technology to trace transaction flows, ensuring transparency and traceability in taxation. This shift requires tax authorities not only to possess professional tax knowledge but also to have a certain level of technical expertise to meet the demands of the digital economy.

In facing these challenges, policymakers need to adopt effective strategies. On one hand, they may consider innovating tax policies, such as introducing new tax regimes like the Digital Services Tax (DST) to address specific services and activities arising in the digital economy. The implementation of the DST can help ensure that businesses operating in the digital economy bear a reasonable tax burden for the income they generate. Additionally, international coordination and cooperation become particularly important. Countries can reduce tax planning opportunities for multinational enterprises through enhanced information sharing and coordinated actions, achieving tax fairness.

Fifth, policymakers must pay attention to the balance between the flexibility and stability of tax policies. When formulating tax policies, it is essential to consider the rapid changes inherent in the digital economy to avoid rigidity and obsolescence in policies. Regular assessments and adjustments of tax policies can ensure their adaptability to changes in the economic environment, thereby enhancing the effectiveness of tax systems. Moreover, policymakers should focus on raising public awareness of taxation and compliance education, improving the understanding and acceptance of tax policies among businesses and individuals, which can enhance the effectiveness of tax policy implementation.

Finally, the tax challenges of the digital economy also provide new directions and fields for academic research. Future research can focus on the differential impacts of the digital economy on various types of enterprises, exploring the interaction between the digital economy and tax policy, and subsequently proposing more targeted policy recommendations. Furthermore, how to achieve consistency and coordination in tax policies at the international level is also an important research topic for the future. Such studies will provide strong support for the innovation and development of the global tax system.

Through the theoretical analysis of tax challenges in the era of the digital economy, it is evident that the characteristics of intangibility, globalization, and liquidity in the digital economy significantly disrupt traditional tax systems, compelling policymakers to adopt innovative and flexible responses. In the future, as the digital economy continues to develop, related tax policies and theoretical research will deepen, ensuring the fairness and effectiveness of tax systems.

4 CONCLUSION

This paper discusses the challenges and policy responses of the tax system in the era of the digital economy, analyzing the profound impacts of the characteristics of the digital economy on traditional tax systems. Through a review of relevant literature and theoretical analysis, we find that the intangibility, globalization, and liquidity of the digital economy present numerous difficulties for tax collection and administration, leading to issues such as base erosion and profit shifting. These challenges not only affect tax revenues in various countries but also exacerbate inequality in the distribution of social wealth and weaken public trust in the tax system.

In addressing the tax challenges posed by the digital economy, governments worldwide have adopted a series of innovative policy measures. Among these, the Digital Services Tax (DST) has gained widespread attention as an emerging tax mechanism. While the DST has alleviated some of the tax burdens for digital enterprises, its implementation still faces difficulties in international coordination. Additionally, differences in tax policies across countries may trigger trade frictions, impacting the stability of the global economy. Therefore, enhancing international cooperation and coordination to formulate consistent tax policies is an important avenue for achieving tax equity.

At the same time, the rapid changes in the digital economy require tax authorities to improve their digital management capabilities, utilizing emerging technologies to enhance the efficiency of tax collection and administration. By employing big data, artificial intelligence, and blockchain technologies, tax authorities can better trace transaction flows, ensuring the transparency and fairness of taxation. This transformation not only helps improve tax compliance rates but also strengthens public trust in the tax system.

In the future, policymakers need to find a balance between flexibility and stability in tax policies, ensuring that tax systems can adapt to the development of the digital economy. Additionally, the academic community should continue to investigate the interactive relationship between the digital economy and tax policies, exploring their specific impacts on different countries and regions to provide theoretical support for policymakers.

In summary, the tax challenges of the digital economy are complex and multifaceted issues that require collaborative efforts from governments, tax authorities, and the academic community to explore tax systems that adapt to the new era. Through innovative policy responses and the application of technological means, we can hope to promote sustainable economic development while protecting tax equity.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- [1] He W. Digital Economy, Cross-border Tax Administration, and the Restructuring of International Tax Order. *Local Financial Research*, 2021, (08): 63-68.
- [2] Janský P, Palanský M. Estimating the scale of profit shifting and tax revenue losses related to foreign direct investment. *International Tax and Public Finance*, 2019, 26: 1048-1103.
- [3] Katterbauer K. Digital Service Tax: An Empirical Legal Analysis. *IALS Student Law Review*, 2020, 14-27.
- [4] Wu PX, Lan ZY, Huang W, et al. Discussion on the Application of Blended Teaching Mode Based on MOOCs among Medical Undergraduates. *Journal of Youjiang Medical University for Nationalities*, 2020, 42(01): 119-122.
- [5] Trentini C. A reassessment of UNCTAD's transnationality indices in the digital economy. *Transnational Corporations*, 2021, 28(3): 201-217.
- [6] Autio E, Mudambi R, Yoo Y. Digitalization and globalization in a turbulent world: Centrifugal and centripetal forces. *Global Strategy Journal*, 2021, 11(1): 3-16.
- [7] Williams LD. Concepts of Digital Economy and Industry 4.0 in Intelligent and Information Systems. *International Journal of Intelligent Networks*, 2021, 2: 122-129.
- [8] Cui XL, Yang ML. The impact of nursing intervention based on the Rosenthal effect on stress response and emotional state in children with scoliosis. *Journal of Youjiang Medical University for Nationalities*, 2019, 41(06): 713-715.
- [9] Huang N, Liu YP, Xu ZF, et al. A study on the relationship between TCM syndrom classification and tongue and gastroscopy images in patients with active peptic ulcer. *Journal of Youjiang Medical University for Nationalities*, 2018, 40(05): 466-468+471.
- [10] Lin JW. The logic and prospects of China's Digital Services Tax Legislation. *Journal of Xihua University (Philosophy and Social Sciences Edition)*, 2022, 41(2): 37-46.
- [11] Harpaz A. Taxation of the digital economy: Adapting a twentieth-century tax system to a twenty-first-century economy. *Yale Journal of International Law*, 2021, 46: 57-98.
- [12] Zhao WJ, Chen J, Zhu Y, et al. Clinical application analysis of paclitaxel combined with cisplatin neoadjuvant chemotherapy in early to mid-stage cervical cancer. *Journal of Youjiang Medical University for Nationalities*, 2018, 40(05): 438-440.
- [13] Liu SC. Targeted paths and policy supply for the high-quality development of China's digital economy. *Economist*, 2019, (06): 52-61.
- [14] Geringer S. National digital taxes – Lessons from Europe. *South African Journal of Accounting Research*, 2020, 35(1): 1-19.
- [15] Cockfield A. Shaping International Tax Law and Policy in Challenging Times. *Stanford Journal of International Law*, 2018, 54: 223. Available at SSRN: <https://ssrn.com/abstract=3236304>
- [16] Li R, Li PX. Correcting regional tax imbalance in the era of the digital economy: A vertical allocation perspective. *Journal of Shanghai University of Finance and Economics*, 2023, 25(01): 108-123.