

DIGITAL TAXATION AND SUSTAINABLE DEVELOPMENT: POST-PANDEMIC EVIDENCE



Nurhayati^{1*}, Meta Nursita¹, Lokita Rizky Megawati^{2,3}

¹Pamulang University, Jl. Surya Kencana No. 1. Pamulang, South Tangerang, Banten 15417, Indonesia

²School of Business, IPB University, Jl. Pajajaran, Bogor 16151, Indonesia

³Faculty of Economics and Business, Universitas Padjadjaran, Jln. Raya Bandung-Sumedang Km. 21 Jatinangor 45363, Indonesia

*Corresponding author:

Email: nurhayati02644@unpam.ac.id

ABSTRACT

Background: The COVID-19 pandemic has significantly reshaped the global economic and business landscape by accelerating digital transformation. This shift has intensified the complexity of international taxation systems, particularly in addressing cross-border digital activities, while simultaneously highlighting the growing importance of aligning fiscal policies with sustainable development objectives.

Purpose: This study aims to examine how digital transformation in the post-pandemic era has reshaped international taxation dynamics, particularly in terms of its implications for government revenue, business behavior, and sustainable development outcomes.

Design/methodology/approach: This research employs a mixed-method approach, combining qualitative and quantitative analyses through a comparative framework of international taxation systems. The study relies on secondary data obtained from government reports, tax authorities, international organizations, and peer-reviewed academic literature.

Findings: The findings indicate that digital transformation has significantly increased the complexity of tax collection, particularly in relation to cross-border digital transactions and tax avoidance practices. At the same time, digital taxation policies have measurable effects on government revenue and firm behavior. Furthermore, taxation instruments such as digital taxes and carbon taxes play a crucial role in supporting sustainable development by financing public services, reducing environmental externalities, and addressing income inequality.

Conclusion: The international taxation system must adapt to the challenges of digitalization by strengthening regulatory frameworks, enhancing transparency, and fostering international cooperation. Coordinated global efforts are essential to reduce tax avoidance, ensure fair tax allocation, and support sustainable economic development.

Originality/value: This study contributes to literature by integrating digital taxation, pandemic-driven economic transformation, and sustainable development into a unified analytical framework. It offers policy-relevant insights by linking international tax reforms with sustainability objectives in the digital economy.

ARTICLE INFO

Keywords:

digital economy,
digital taxation,
international
taxation, sustainable
development, tax
avoidance

How to Cite: Nurhayati, Nursita, M., & Megawati, L. R. (2026). Digital taxation and sustainable development: Post-pandemic evidence. *Indonesian Journal of Accounting, Risk and Governance*, 1(1), 1.

INTRODUCTION

The COVID-19 pandemic has triggered a profound transformation in the global economy, accelerating the adoption of digital technologies and reshaping fundamental economic and business paradigms. This rapid digitalization has not only altered business models and consumer behavior but has also intensified

challenges in international taxation, particularly in relation to cross-border digital transactions (Vella et al., 2022; OECD, 2023). As firms increasingly operate without a significant physical presence, traditional tax principles based on permanent establishment have become less effective, creating gaps in tax enforcement and raising concerns over base erosion and profit shifting (Beer et al., 2020).

At the same time, governments worldwide are under increasing pressure to align fiscal policies with sustainable development objectives. Taxation is no longer viewed solely as a revenue-generating instrument but also as a strategic policy tool to promote environmental sustainability and inclusive economic growth (Keen & Konrad, 2013; World Bank, 2022). In this context, the intersection between digital taxation and sustainable development has emerged as a critical area of inquiry, particularly in the post-pandemic era where digital economic activities continue to expand rapidly.

Despite growing policy attention, the international taxation system remains fragmented due to differences in national regulations. This fragmentation creates significant challenges in tax collection, the mitigation of tax avoidance, and the achievement of Sustainable Development Goals (SDGs). The digitalization of the economy further complicates these issues by enabling multinational enterprises to shift profits across jurisdictions with minimal physical presence, thereby weakening the effectiveness of existing tax frameworks (Beer et al., 2020). While prior studies have extensively examined digital taxation and international tax avoidance, limited research has explicitly connected these issues to sustainable development outcomes. This gap highlights the need for a more integrated analytical framework that links digital tax policy with broader sustainability objectives.

Digitalization in international taxation refers to the integration of advanced technologies and the transformation of how multinational enterprises generate, report, and allocate income within the digital economy. This transformation has prompted governments to adapt their tax frameworks in response to the evolving nature of economic activities. Several key dimensions characterize this shift. First, the taxation of digital income has become increasingly complex, as many jurisdictions face difficulties in imposing taxes on large technology firms operating across borders without a physical presence. Second, the implementation of the automatic exchange of information has enhanced transparency and reduced opportunities for tax evasion. Third, emerging discussions on the taxation of data as an economic asset reflect the growing recognition of data's value in the digital economy. Finally, ongoing efforts to reform international tax rules, such as the OECD's Base Erosion and Profit Shifting (BEPS) initiatives, underscore the importance of coordinated global responses to digitalization.

Recent developments in the digital economy have also intensified global debates on the adequacy of existing international tax rules, particularly regarding the allocation of taxing rights and the concept of value creation. The increasing reliance on intangible assets, user-generated data, and platform-based business models challenges traditional tax frameworks that are largely based on physical presence and source-based taxation principles. As highlighted in the literature, digital firms can generate substantial economic value in jurisdictions where they have limited or no physical operations, thereby undermining the effectiveness of conventional tax nexus rules (Vella et al., 2022; Zucman, 2014). This shift has prompted calls for fundamental reforms in international taxation, including the redefinition of taxable presence and the introduction of new mechanisms for profit allocation across jurisdictions.

In addition, while a growing body of research has examined digital taxation and tax avoidance separately, limited attention has been given to how these issues interact with sustainability agendas, particularly in developing and emerging economies. Existing studies tend to focus on revenue implications or regulatory challenges without adequately considering the broader role of taxation in supporting sustainable development outcomes (Avi-Yonah, 2003; Dharmapala, 2014). This gap is particularly important given that fiscal policy plays a central role in financing sustainability transitions, including investments in green infrastructure, social protection, and environmental mitigation. Therefore, a more integrated approach is required to understand how digital taxation can simultaneously address efficiency, equity, and sustainability objectives in an increasingly digitalized global economy.

Given these developments, this study aims to examine how the COVID-19 pandemic and accelerated digital transformation have reshaped the dynamics of international taxation and strengthened the role of tax authorities in supporting sustainable development. Specifically, this research analyzes the implications of digital tax policies for economic growth and environmental sustainability, as well as the importance of international cooperation in addressing the challenges of digital taxation. By integrating perspectives from digital economy development and sustainability policy, this study contributes to the growing body of literature on the role of taxation in achieving global development goals in the digital era.

METHODS

This study employs a mixed-method approach, integrating qualitative and quantitative analyses to examine the evolving dynamics of international taxation in the context of digital transformation and sustainable development. The combination of these approaches enables a comprehensive understanding of both structural differences in tax systems and their measurable impacts on economic and sustainability indicators (Creswell & Creswell, 2017).

The research is structured into three main analytical components. First, a comparative analysis of international taxation systems is conducted to evaluate differences in tax structures, rates, and regulatory frameworks across selected countries. Comparative approaches are widely used in international tax research to identify policy gaps and institutional differences across jurisdictions (Vella et al., 2022).

Second, the study examines the relationship between taxation and sustainable development by analyzing how fiscal policies influence economic growth, income distribution, and environmental outcomes. Prior studies highlight that taxation plays a crucial role not only in revenue generation but also in addressing inequality and environmental externalities (Keen & Konrad, 2013).

Third, the study analyzes the impact of digital taxation in the digital economy era, focusing on how tax policies affect government revenue and business activities. This includes assessing the implications of digital tax regulations on online transactions, technological adoption, and tax compliance among digital enterprises. The increasing importance of digital taxation has been emphasized in recent literature due to the challenges posed by highly digitalized business models (Beer et al., 2020).

This research utilizes secondary data obtained from multiple credible sources, including official reports from tax authorities, government publications, international organizations, and peer-reviewed academic literature. Secondary data analysis is particularly suitable for cross-country and policy-oriented research, as it allows for broader generalization and comparative insights (Johnston, 2014). In addition, data related to digital economic activities, such as digital transaction volumes, financial reports of digital firms, and digital

tax reports are incorporated to support the analysis. The use of diverse and reputable data sources enhances the reliability and validity of the findings.

The study operationalizes three main groups of variables:

1. International Taxation System Variables

These include tax structures, tax rates, types of taxes (e.g., income, consumption, and property taxes), and existing tax avoidance mechanisms. These variables are used to assess differences in taxation systems across countries.

2. Sustainable Development Variables

These consist of indicators such as carbon tax implementation, income inequality levels, poverty rates, economic development levels, and environmental impact (e.g., carbon emissions and resource utilization). These indicators are commonly used in sustainability and fiscal policy studies (Keen & Konrad, 2013).

3. Digital Taxation Variables

These include tax revenue from digital businesses, online transaction volumes, levels of digital technology adoption, and the extent of tax avoidance in digital sectors. These variables are used to analyze the impact of digital taxation policies in the digital economy context (Beer et al., 2020).

The study employs several analytical techniques. A comparative analysis is used to identify similarities and differences in taxation systems across countries. In addition, descriptive and correlational analyses are applied to examine the relationships between taxation policies and sustainable development indicators, which is a common approach in policy and economic research (Creswell & Creswell, 2017). To analyze the impact of digital taxation, the study uses trend analysis and comparative evaluation to assess how changes in tax regulations influence tax revenue and business activities in the digital economy. These analytical approaches enable the study to generate comprehensive insights into the role of taxation in addressing global economic and sustainability challenges. To provide a clearer overview of the variables, data sources, and analytical techniques used in this study, Table 1 summarizes the research framework.

Table 1. Variables, data sources, and analytical approach

Research Component	Variables	Indicators	Data Sources	Analytical Technique
Comparative Analysis of International Taxation Systems	Taxation system characteristics	Tax rates; types of taxes (income, consumption, property); tax policies; tax avoidance mechanisms	Tax authority reports; government publications; academic literature	Comparative analysis of cross-country differences and similarities
Taxation and Sustainable Development	Tax policy and sustainability outcomes	Carbon tax implementation; income inequality; poverty level; economic development; environmental impact (carbon emissions, resource use)	World Bank data; government reports; environmental databases	Descriptive and correlational analysis
Digital Taxation in the Digital Economy	Impact of digital tax policies	Digital tax revenue; online transaction volume; digital adoption level; tax avoidance in digital sectors	Digital economy reports; company financial reports; tax reports	Trend analysis and comparative evaluation

RESULTS

Digital Transformation and the Expansion of the Digital Economy

The results indicate that the COVID-19 pandemic acted as a major catalyst for digital transformation, significantly accelerating the adoption of digital technologies across sectors. This transformation is evident in the rapid transition toward remote work, online education, digital commerce, and telemedicine. These changes reflect a structural shift in both economic systems and societal behavior, where digital platforms have become essential infrastructures rather than complementary tools. Previous studies confirm that the pandemic compressed years of digital adoption into a short time frame, fundamentally altering economic trajectories (Brynjolfsson et al., 2020; Baldwin et al., 2021).

Beyond short-term adaptation, the findings suggest that digital transformation has created persistent changes in production and consumption patterns. Firms are increasingly integrating digital technologies into their core operations, while consumers demonstrate a sustained preference for digital services. This aligns with research indicating that digitalization enhances efficiency, reduces transaction costs, and expands market access (Goldfarb & Tucker, 2019). As a result, the digital economy has become a central driver of global economic growth.

The expansion of digital platforms has also intensified the dominance of multinational technology firms operating across borders. These firms leverage intangible assets such as algorithms, data, and intellectual property,

enabling them to scale rapidly without significant physical presence. This phenomenon has blurred geographical boundaries and challenged traditional economic and regulatory frameworks (Aoyama et al., 2025).

In addition, digital transformation has contributed to the emergence of sustainability-oriented economic behavior. Consumers increasingly demand environmentally friendly products, while firms adopt more efficient and transparent production systems. Technologies such as artificial intelligence and blockchain facilitate these changes by improving supply chain traceability and reducing resource waste. Prior research highlights that digital innovation plays a critical role in supporting environmental sustainability and green transitions (Aghion et al., 2016).

However, the expansion of the digital economy also introduces new inequalities, particularly between countries with different levels of digital infrastructure and technological readiness. Developed economies benefit more from digitalization, while developing countries face challenges in accessing digital markets and technologies. This digital divide has important implications for global economic inclusion and policy design.

Implications for International Taxation Systems

The analysis shows that digital transformation has significantly increased the complexity of international taxation systems, particularly in relation to tax avoidance practices. Multinational enterprises can now generate significant profits in jurisdictions where they have minimal or no physical presence, making it difficult

for tax authorities to enforce traditional tax rules. This has intensified concerns over base erosion and profit shifting (BEPS), as firms exploit regulatory differences across countries (Beer et al., 2020; Dharmapala, 2014). The findings also reveal that the reliance on intangible assets and digital platforms further complicates tax allocation. Unlike traditional industries, digital firms derive value from user participation, data collection, and network effects, which are difficult to measure and tax. This challenges the fundamental principles of international taxation, particularly the concepts of nexus and value creation (Vella et al., 2022; Zucman, 2014).

Existing international tax frameworks are increasingly viewed as inadequate in addressing these challenges. The OECD has responded through initiatives such as the BEPS project and the two-pillar solution, which aim to reallocate taxing rights and introduce a global minimum tax. While these initiatives represent significant progress, their implementation remains uneven across countries.

Furthermore, the results indicate that institutional capacity plays a critical role in determining the effectiveness of tax systems. Countries with strong regulatory frameworks, advanced digital infrastructure, and effective enforcement mechanisms are better able to address tax avoidance. In contrast, developing countries face structural limitations that hinder their ability to capture tax revenues from digital activities (Avi-Yonah, 2003; Cobham & Janský, 2018).

Finally, the increasing complexity of international taxation underscores the need for greater global coordination and policy harmonization. Without coordinated efforts, inconsistencies in national tax systems will continue to create opportunities for regulatory arbitrage, undermining the fairness and efficiency of global taxation.

Taxation and Sustainable Development Outcomes

The results demonstrate that taxation plays a fundamental role in supporting sustainable development, particularly through its function as a source of public revenue. Governments rely on tax revenues to finance essential services such as education, healthcare, infrastructure, and environmental protection. These expenditures are critical for achieving long-term development goals and improving societal welfare.

In addition to revenue generation, taxation serves as a policy instrument for influencing economic behavior. Environmental taxes, such as carbon taxes, create incentives for firms and individuals to reduce emissions and adopt cleaner technologies. Empirical evidence suggests that such fiscal measures can effectively internalize environmental externalities and promote green innovation (Acemoglu et al., 2012; Aghion et al., 2016).

The findings also highlight the role of taxation in reducing income inequality and promoting social inclusion. Progressive tax systems, combined with targeted public spending, can redistribute income and improve access to essential services. This aligns with broader literature emphasizing the importance of fiscal policy in addressing inequality and supporting inclusive growth (Keen & Konrad, 2013).

However, the relationship between taxation and sustainable development is not without challenges. High tax burdens may discourage investment and reduce economic efficiency, while low tax revenues may limit the government's ability to fund sustainability initiatives. This trade-off requires careful policy design to balance economic, social, and environmental objectives (Stiglitz, 1987).

Moreover, globalization and digitalization further complicate this relationship by enabling capital mobility and tax competition among countries. These dynamics can undermine national tax bases and reduce the effectiveness of fiscal policy. Therefore, international cooperation is essential to ensure that taxation systems support sustainable development in a globalized economy.

Impact of Digital Taxation on Economic Activities

The results suggest that digital taxation policies have a significant impact on both government revenue and business behavior. The introduction of digital taxes allows governments to capture revenue from digital economic activities that were previously under-taxed, particularly those involving multinational technology firms.

At the same time, digital taxation influences firm-level decisions, including pricing strategies, investment choices, and market participation. Firms may adjust their operations to minimize tax liabilities, for example

by relocating activities or restructuring their corporate entities. These behavioral responses are consistent with existing research on the economic effects of taxation (Vella et al., 2021).

In some cases, the burden of digital taxes may be partially passed on to consumers through higher prices. This highlights the importance of considering the broader economic implications of tax policies, including their impact on consumers and market efficiency.

The findings also indicate that the effectiveness of digital taxation depends on the level of digital infrastructure and regulatory readiness. Countries with well-developed digital ecosystems and strong administrative capacity are more successful in implementing digital tax policies and ensuring compliance. Finally, international initiatives such as the OECD's two-pillar solution play a crucial role in enhancing the effectiveness of digital taxation. By promoting global coordination and reducing tax competition, these initiatives aim to create a more equitable and efficient international tax system.

Integrated Discussion and Policy Implications

Overall, the findings highlight that digital transformation has fundamentally reshaped the relationship between international taxation, economic development, and sustainability. The increasing importance of the digital economy requires governments to adapt their tax systems to new economic realities.

An integrated policy approach is essential to address these challenges. This includes combining digital taxation reforms with environmental taxation and redistributive policies to achieve balanced and sustainable outcomes. Such an approach ensures that taxation systems remain relevant and effective in a rapidly changing global environment.

The results also emphasize the importance of institutional capacity and governance in implementing effective tax policies. Strengthening tax administration, improving transparency, and leveraging digital technologies are critical steps toward enhancing tax compliance and efficiency.

Furthermore, international cooperation is indispensable in addressing the challenges of digital taxation. Coordinated efforts are needed to reduce tax avoidance, harmonize regulations, and ensure a fair distribution

of tax revenues across countries. In conclusion, the integration of digital taxation and sustainable development represents both a challenge and an opportunity for policymakers. By adopting innovative and coordinated approaches, governments can leverage taxation as a powerful tool to support inclusive and sustainable economic growth.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study demonstrates that the acceleration of digital transformation in the post-pandemic era has fundamentally reshaped the dynamics of international taxation. The findings show that the expansion of digital economic activities challenges traditional tax frameworks based on physical presence, increasing the complexity of tax enforcement and the risk of base erosion and profit shifting.

The results also highlight that digital taxation plays a dual role as both a revenue-generating instrument and a regulatory mechanism influencing firm behavior, including pricing strategies, operational structures, and market participation. In addition, taxation remains a critical tool for supporting sustainable development through public revenue generation, redistribution, and environmental policy instruments such as carbon taxation.

Overall, the study underscores the need for integrated tax policies that balance efficiency, equity, and sustainability. Strengthening international cooperation and improving institutional capacity are essential to ensure that taxation systems remain adaptive, effective, and aligned with the evolving digital economy.

Recommendations

Based on the findings, several policy recommendations can be proposed. Governments should enhance international coordination in digital taxation by actively supporting global initiatives such as the OECD's two-pillar framework to ensure fair allocation of taxing rights and reduce tax avoidance practices. At the national level, tax authorities need to strengthen digital infrastructure and administrative capacity to improve monitoring, compliance, and enforcement of cross-border digital transactions. Policymakers

are also encouraged to integrate digital taxation with sustainability-oriented fiscal instruments, such as carbon taxes and green incentives, to support long-term development goals.

Furthermore, developing countries should receive greater institutional and technical support to address disparities in tax capacity and digital readiness. Future research is recommended to explore empirical evidence across different country contexts, particularly in emerging economies, to better understand the long-term impact of digital taxation on economic and sustainability outcomes.

REFERENCES

- Acemoglu, D., Aghion, P., Bursztyn, L., & Hemous, D. (2012). The environment and directed technical change. *American economic review*, 102(1), 131-166.
- Aghion, P., Dechezleprêtre, A., Hemous, D., Martin, R., & Van Reenen, J. (2016). Carbon taxes, path dependency, and directed technical change: Evidence from the auto industry. *Journal of political economy*, 124(1), 1-51.
- Aoyama, Y., Haberly, D., Horner, R., & Schindler, S. (2025). Economic geography for the 21st century: an introduction. In *A Research Agenda for Economic Geography* (pp. 1-12). Edward Elgar Publishing.
- Avi-Yonah, R. S. (2003). International tax as international law. *Tax L. Rev.*, 57, 483.
- Baldwin, D. S., Gordon, R., & Marlowe, K. (2021). The roles of a psychiatrist in the COVID-19 pandemic. *Clinics in Integrated Care*, 4, 100036.
- Beer, S., De Mooij, R., & Liu, L. (2020). International corporate tax avoidance: A review of the channels, magnitudes, and blind spots. *Journal of economic surveys*, 34(3), 660-688.
- Brynjolfsson, E., Benzell, S., & Rock, D. (2020). Understanding and addressing the modern productivity paradox. *Research Brief. MIT, Industrial Performance Center, MIT, Cambridge, MA*.
- Cobham, A., & Janský, P. (2018). Global distribution of revenue loss from corporate tax avoidance: re-estimation and country results. *Journal of International Development*, 30(2), 206-232.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Dharmapala, D. (2014). What do we know about base erosion and profit shifting? A review of the empirical literature. *Fiscal Studies*, 35(4), 421-448.
- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of economic literature*, 57(1), 3-43.
- Johnston, M. P. (2014). Secondary data analysis: A method of which the time has come. *Qualitative and quantitative methods in libraries*, 3(3), 619-626.
- Keen, M., & Konrad, K. A. (2013). The theory of international tax competition and coordination. *Handbook of public economics*, 5, 257-328.
- McKinsey & Company. (2021). COVID-19 and the great acceleration: How the pandemic is speeding digital transformation.
- OECD (2023). *Addressing the Tax Challenges Arising from the Digitalisation of the Economy*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development (OECD). (s.d.). Base Erosion and Profit Shifting (BEPS).
- Stiglitz, J. E. (1987). Pareto efficient and optimal taxation and the new new welfare economics. In *Handbook of public economics* (Vol. 2, pp. 991-1042). Elsevier.
- United Nations. (2023). *The sustainable development goals report 2023*.
- United Nations Conference on Trade and Development (2022). *Digital Economy Report 2022: Cross-border data flows and development*. Geneva: UNCTAD.
- Vella, J., Devereux, M. P., & Wardell-Burrus, H. (2022). Pillar 2's Impact on Tax Competition. Available at SSRN 4203395.
- World Bank. (2022). *Fiscal Policy for Sustainable Development*.
- Zucman, G. (2014). Taxing across borders: Tracking personal wealth and corporate profits. *Journal of economic perspectives*, 28(4), 121-148.