

TAXATION OF ELECTRONIC COMMERCE AND DIGITAL BUSINESS IN THE CONDITIONS OF GLOBAL CONVERGENCE ECONOMICS

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Abstract. Purpose – Identify the relationship between the amount of taxes and their payment by a digital enterprise and develop recommendations for improving the quality of e-commerce taxation.

Research methodology – On the basis of dialectical and systematic methods, the influence of the amount of the tax on filling the budgets of countries and the expansion of digital activities of enterprises was investigated. The spatial set of the study is economic agents of the EU and the USA who use the Internet for their business activities. The possibilities of conducting e-business in 15 countries of the world were studied. The time frame of the study is 2015–2025.

Findings – The tax on digital products/services and virtual business is characterized through the prism of the amount of the tax, the procedure for its collection, and the amount of revenue to the budgets.

Research limitations – The limitation of the study is that not all countries of the world that carry out e-commerce or engage in digital business have an open and regulated policy of taxation.

Practical implications – The content of practical advice, the use of which will make it possible to maintain positive dynamics in the taxation of digital entrepreneurship, has been revealed.

Originality/Value – After analyzing the graphical interpretation of the Laffer curve for digital entrepreneurship, we managed to find out that higher tax rates restrain the economic activity of digital enterprises.

Keywords: taxation of digital business, taxes on digital services, digital entrepreneurship, e-commerce, principles of taxation.

JEL Classification: E62, F01, P13.

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1. Introduction

In light of digital transformation, institutional-structural changes, and the modernization of production, there is a need to clarify the relationship between the amount of tax for a digital enterprise and the possibilities of putting new equipment into operation and launching new technological processes in production. The development of ICT and the formation of AR with their participation requires the development of new approaches and rules in the work of the tax system during the functioning of mobile business and digital entrepreneurship (DE).

The issues of taxation of intangible assets and digital services due to their mobility and speed of provision and receipt are open to resolution. Among the latest technologies used by tax systems in post-industrial countries are “AI, blockchain, big data, IoT, wireless connectivity, cloud computing, and AR” (Kurniati & Suryanto, 2023, p. 822). The working principles

of the digitized production taxation mechanism may require changes, because in the 21st century thanks to the products of the digital economy, it is possible to organize and manage a digital enterprise and digitized production without any obstacles while being on the other side of the planet.

The growth of the number of digital enterprises, e-commerce, types of digital business models, and Internet trade over the past 20 years has been accompanied by a series of debates in forums, and symposiums on the mechanism of tax payment and clarifying the question of who should pay taxes (the seller or the buyer)? In which country? Due to the lack of changes in the tax systems of the countries where the digital product is created and the countries where it is consumed, most countries have introduced unilateral tax measures for digital business, including Digital Service Tax (DST_s), gross income taxes and digital regulations. Permanent representation is permanent representation (Enache, 2024, p. 1). The fact is emphasized "the erosion of tax revenues by e-commerce and the emergence of a new commercial and fiscal equilibrium..., equilibrium tax rates and revenues decrease in large, core jurisdictions but increase in small ones, reducing the tax gap" (Agrawal & Wildasin, 2020).

From 2019 to 2022, digital services tax revenues increased by 134% in Turkey, 100% in India, 71% in France, 67% in Spain and 24% in Italy (Borders et al., 2023, p. 8). Great Britain expects a 143% increase in revenues from taxation of digital services in 2025, Turkey in 2024 by 47%, and France in 2023 already received 40% more than in 2022. In India, revenue to the budget increased by 250% from 2017 (40 million EUR) to 2020 (140 million EUR). In 2022, Spain received 278 million EUR in digital services tax revenue, and 285 million EUR in 2023 (Borders et al., 2023, pp. 9–11). Currently, 101 countries have implemented value added tax (VAT) or goods and services tax (GST) for cross-border online sales. From these measures in the EU countries from 2015 to 2022, VAT revenues increased 7 times, and the VAT profit received from e-commerce increased 2.5 times, compared to tariffs at current rates (Enache, 2024, p. 1). Total revenues from VAT in the EU in 2015 amounted to 853 billion EUR, and in 2022 – 1.2 trillion EUR (Eurostat, n.d.).

It becomes obvious that the issue of development and improvement of tax administration in the field of e-commerce is relevant and a priority in the system of international taxation because there is a positive dynamic of revenues to the budgets of different countries. In order for taxes to continue to be paid in a timely, transparent, and efficient manner, international institutions should continue to work in a coordinated manner on the issue of expanding the tax base in Internet trade, improve tax collection rules, and partially harmonize them in order to avoid double taxation.

The purpose of the article is to analyze the taxation of e-commerce and DE through the prism of taxation principles, graphical modeling of changes in the amount of taxes on digital goods and services.

The originality of the study lies in the fact that, after analyzing the graphical interpretation of the Laffer curve for DE, it was found that higher tax rates inhibit the economic activity of digital enterprises, which leads to a reduction in the tax base. It is proposed to expand the digital presence of business, taking into account the existing criteria and principles of taxation, which have significantly expanded over three centuries. Neutrality, certainty, simplicity, efficiency, flexibility, fairness, transparency, and stability are attributed to modern principles

of taxation of DE and Internet trade. It is proposed to develop new rules for taxation of e-commerce in light of the active convergence of the economies of different countries and to ensure coordination with those already existing in the international tax system. The spatial component of the study is economic agents of the EU and the USA who use the Internet for their business activities, namely 15 countries in which e-business is actively developing. The time frame of the study covers the years 2015–2024. The design of the methodology and approaches used in the study are the method of systematic review and meta-analysis of the basic 54 articles.

2. Literature review

The importance of studying this issue is evidenced by the inscription on the facade of the US Department of Internal Revenue: “Taxes are the price of a civilized society”. The economist Smith (1776) explained that not only people should take into account the interests of others but also the state, which has no right to interfere in the economic life of society but only to help people to exchange money fairly and to set fair, honest, and convenient taxes for the payer. It is proposed to resolve the conflict of tax interests by deeper integration of the tax strategy in the business operations of the digital company in order to ensure compliance with existing tax regulations and develop new tax rules (Hughes & Glaister, 2001).

An attempt is made to find out the conditions and circumstances under which companies avoid paying taxes in the course of conducting electronic business activities in European countries (Argilés-Bosch et al., 2020). The concept of the company’s electronic commercial activity is studied through the prism of tax strategy, and attention is drawn to the fact that the e-company’s activities are spread over a significant number of countries, without a physical presence in the countries of sale, and therefore transactions are carried out in different tax jurisdictions (Hughes & Glaister, 2001).

The influence of tax policy on investment processes in business was analyzed and the level of investment, time periods of investment income, their effectiveness in the short and long term were studied (Hassett & Hubbard, 2002). The work of Agrawal and Wildasin (2020) is devoted to the review of issues of the quality of the fiscal system as a result of the application of new technologies in the course of digital business transactions. They emphasize the need to improve the tax system in the course of the accelerated digitalization of business, which is caused by the fact that cross-border purchases are taxed at the place of origin and e-commerce is taxed in the country of sale.

The publication by Pobee et al. (2023) deserves attention because they used the model of the unified theory of the adoption and use of technologies to clarify the factors of using e-money and mitigating the influence of tax system tools on the introduction of e-money. A special role belongs to advanced digital technologies that contribute to rapid digital transformation, in particular, the implementation of ChatGPT, which “in entrepreneurship significantly and positively affects people’s attitude to DE, subjective norms, perceived control of behavior, and DE intentions” (Doanh, 2024).

The focus of the scientific attention of Ouyang et al. (2023) is focused on the study of causal relationships between digital finance and tax compliance by small businesses.

Researchers Grieson et al. (1977) studied the impact of the tax system on the location of industrial infrastructure facilities. As early as 1977, they clarified the theoretical and economic model of the influence of local taxes on economic activity according to the settlement and region. Scientists Bassey et al. (2022) attempted to provide a systemic view of digital tax administration by analyzing 96 publications on the subject. Based on the results of the analysis, a number of recommendations were given in terms of improving the mechanism of tax administration of digital services, taking into account the current speed of development of new technologies, software.

We consider scientific and practical products to be valuable from the point of view of the formation of the central processing unit and the development of digital business in the European space of the international grant project under the program KA 2: Cooperation for innovation and the exchange of good "Teaching Digital Entrepreneurship". The scientific products of the project present an analysis of the step-by-step launch of digital business (Magliocca, 2021); educational materials have been developed, according to which educational programs on training in DE can be implemented (Botti et al., 2021; Herold et al., 2022a, 2022b).

The research results show that "the adoption of technologies has a positive effect on both the market and the efficiency of the sustainable development of European SMEs at the country level. This effect is greater on market indicators than on sustainability indicators" (Endródi-Kovács et al., 2024). The researchers concluded that "efficiency can contribute to the sustainability of digital multi-sided platform (MSP) startups after they succeed in delivering radical innovation" (Prijadi et al., 2024). It is worth working to eliminate the inequality of the regional distribution of the development of digital transformation (Chu et al., 2025) and to create an effective digital business environment policy (Ray et al., 2024).

A number of studies have been carried out on issues of digital transformation of business, systematic and complex modernization of industry and production on the basis of Industry 5.0, formation of an ecosystem of innovative economy for the purpose of economic growth (Kraus et al., 2021, 2023). Innovative changes that should be resorted to in the tax system and in the financial sector of the economy were analyzed (Manzhura et al., 2022).

3. Research methodology

We combined a critical literature review with a quantitative empirical study. The literature review made it possible to interpret the cause-and-effect relationships and economic categories used in the study and define the research problem related to the taxation of DE, and the principles of taxation of digital business in the conditions of the existing global convergence of economies. This research part made it possible to formulate proposals for improving the quality of e-business taxation as a result of the graphical modeling of the Laffer curve for the DE.

To carry out the research, reliable database was used, in particular the materials of the EU, the Organization for Economic Cooperation and Development (OECD), which contain information on the taxation of DE. This allows not only to conduct a qualitative comparative analysis by country regarding their rules and features of digital business taxation, but also to identify factors that influence the improvement or deterioration of the work of tax institutions in terms of e-commerce taxation rules. The implementation of the EU roadmap from

the idea of direct taxation of digital services to implementation lasted from October, 2013 to December, 2022.

An important role is given to theoretical materials and research work, which are contained in scientific articles of rating and highly cited journals indexed in the Scopus database. This database is distinguished by the quality of scientific publications, openness, and a wide range of coverage of scientific journals and countries. These aspects provide the conducted research with representative and relevant data, which cover a wide range of scientific developments, and the results of in-depth research from various fields of knowledge, contain well-founded concepts and hypotheses regarding the taxation of e-commerce and digital business.

In the course of the study, various methods were used. Comparison methods and scientific facts were used in the course of presenting the amount of taxes and revenues to budgets in different countries of the world. The methods of analysis and synthesis are used in the presentation of factors affecting the severity of taxation of intangible assets. The concretization method was applied during the development of the author's proposals in terms of measures aimed at expanding the tax base and improving the taxation system of e-commerce and digital business.

Tabular and graphical methods play a significant role in the scientific generalization of facts, elucidation of patterns, and systematization of the influence of various factors. The use of the tabular method allowed us to systematize and clearly present text and digital information obtained as a result of data collection, grouping, and analysis in the form of tables. Combined tables allowed us to rationally present information. The graphical method contributed to the clear presentation of information obtained as a result of analysis, synthesis of indicators, and modeling of the situation as a result of changing the tax rate for e-business, in the form of a graph of the dependence of varying indicators (by content load) and a linear one in form. The graph helped illustrate the revealed pattern and trend in changing the tax rate for businesses.

One of the first steps of the study is to design the quantitative and spatial component of the study, which consists in determining the general population. The general population of this study is companies and economic agents of the EU and the USA that use the Internet for their business activities and the sale and purchase of goods and services of various types. The time frame chosen for the study is relevant, since the lag is 2015–2025. Typically, the general population of the study is large; it is difficult to calculate it, and it is practically impossible to conduct a study with all units of the general population. It is worth selecting such a size of the general population that would allow, after conducting the study, to draw reasonable conclusions about the general population. The size of the selected general population is 28 countries. During the quantitative study, it is planned to study the possibilities of conducting e-business in 15 countries.

The quantitative analysis is based on the study of the digital transformation of the e-commerce taxation system, which is actively carried out by companies in some EU countries. The comparative analysis contains the characteristic features and procedure for collecting tax for doing business via the Internet. It is aimed at testing, that is, at confirming or refuting the hypotheses put forward, and at the same time at implementing the goal and objectives of the study.

The methodological design and approaches used in the study are a systematic review and meta-analysis of 54 articles, mainly selected from the Scopus database. The publications were analyzed using textometrics of titles, abstracts, and keywords to identify prevailing trends and ideas in the taxation of e-commerce and e-business (Table 1).

Table 1. Overview of current scientific research on the taxation of the digital economy, which formed the basis of the methodology for studying the taxation of e-commerce and e-business (summarized by the authors)

Keywords used in the research search	Number of publications found	Search period and year of publication	Criteria for including a publication for further consideration for analysis and conclusions
Taxation of the digital economy, DE (Mpfu, 2023; Pulatov, 2024). Ecosystem of DE (Adam et al., 2025; Ray et al., 2024). Digital entrepreneurship (Kollmann et al., 2022).	5	2022, 2023, 2024, 2025	"Due to the growth of the digital economy, traditional international tax law is considered inadequate for effective taxation of the digital economy" (Mpfu, 2023). Analysis of tax legislation in terms of effective tax collection. Proposals for long-term measures to improve the taxation of the digital economy (Pulatov, 2024). The effectiveness of DE ecosystem was studied (Adam et al., 2025), the use of digital tools for effective and innovative digital transformation of the enterprise (Ray et al., 2024). Retrospective of the formation, formation, and development of DE (Kollmann et al., 2022).
Digital taxation, digital accounting (Shubailat et al., 2024). Tax legislation (Gangodawilage et al., 2022). Economic innovation and digital taxation (Kwan et al., 2022).	3	2024, 2022	Arguing the relationship between digital taxes, digital accounting, and customs environment through a detailed analysis of customs-related factors such as compliance, efficiency, and stability (Shubailat et al., 2024). Studying the behavior of entrepreneurs in terms of tax compliance in the digital economy (Gangodawilage et al., 2022). Analyzing how digital taxation promotes economic innovation (Kwan et al., 2022).
Tax administration 3.0, AI, digital taxation, tax legislation (Belahouaoui & Attak, 2024). Digital tax administration (Bassey et al., 2022).	2	2024, 2022	The impact of tax digitization through the prism of AI, machine learning, and blockchain technology on improving tax compliance (Belahouaoui & Attak, 2024). The emergence of a new quality of digital tax administration was studied (Bassey et al., 2022).
Digital transformation of the fiscal sphere (Lv & Wu, 2024; Al Omoush et al., 2025; Chu et al., 2025). Green taxation (Lemos et al., 2023).	4	2024, 2023, 2025	The impact of digital finance and taxation reform on the green economy, green growth was analyzed (Lv & Wu, 2024). Dematerialization of documents for the purpose of environmental business activity (Lemos et al., 2023). The relationships between digital business transformation, organizational learning, cost-effective innovations, and the sustainability of small and medium-sized enterprises in emerging markets were studied (Al Omoush et al., 2025). The components of the business environment were considered, namely: public services, government, law, innovation, market, human resources, and financial services (Chu et al., 2025).

End of Table 1

Keywords used in the research search	Number of publications found	Search period and year of publication	Criteria for including a publication for further consideration for analysis and conclusions
Indirect taxation of the digital world (Wolfers & Stephanny, 2024).	1	2024	Analysis of the policy of collecting VAT at the place of final private consumption (Wolfers & Stephanny, 2024).
Sustainable economic growth (Girdzijauskas et al., 2022). Digital transformation, Industry 4.0 (Saraji et al., 2021). Internet marketing (Štreimikienė et al., 2021).	3	2021, 2022	The analysis of the formation of an economic bubble based on the saturation phenomenon based on a new analytical model and its consequences for the micro and macro levels was studied (Girdzijauskas et al., 2022). Clarification of the challenges that arise during the implementation of Industry 4.0 in fintech companies (Saraji et al., 2021). The stimulation of sales by companies through social networks is studied (Štreimikienė et al., 2021).
Technologies, tax systems (Agrawal & Wildasin, 2020). Technologies in tax behavior management (Gangodawilage et al., 2021).	2	2020, 2021	The impact of technology on the digital transformation of the tax system was studied (Agrawal & Wildasin, 2020). The impact of technology on managing the tax behavior of entrepreneurs in the digital economy was analyzed (Gangodawilage et al., 2021).
E-commerce, tax collection (Argilés-Bosch et al., 2020). Taxation (Pobee et al., 2023).	2	2020, 2023	Studying the impact of e-commerce on tax evasion in Europe (Argilés-Bosch et al., 2020). The impact of taxation of digital financial services on financial inclusion (Pobee et al., 2023).
Green entrepreneurship, e-commerce, digital transformation, environmental strategy (Iqbal et al., 2025). Green and sustainable economic growth (Guo et al., 2024; Duta et al., 2024).	3	2024, 2025	Green entrepreneurship, which has a significant impact on environmentally efficient e-commerce and the specifics of reporting on e-business activities on environmental sustainability, was studied (Iqbal et al., 2025). Analysis of business environment indicators using ecosystem theory to study the impact of dependence on natural resources on green economic growth from the perspective of the business environment (Guo et al., 2024). The impact of robotics on sustainable economic growth was studied (Duta et al., 2024).

This quantitative study, in the context of scientific articles, aimed to identify the drivers of digital business transformation, taxation rules, the peculiarities of tax policy used by companies that conduct their business activities via the Internet, and how the taxation system contributes to the payment of taxes to the budget.

These prior empirical results allowed to assume the following *research hypotheses*: The introduction of moderate taxes for DE and e-business demonstrates positive dynamics in the full budget (H1). An increase in the amount of taxes leads to the search for ways to avoid paying taxes by the company or its closure (H2). Compliance with the principles of taxation by the country encourages business to e-commerce and digital presence (H3).

The basis for the development of Hypothesis H1 is the fact that “digital entrepreneurship is crucial for economic growth, job creation, and the implementation of the United Nations 2030 Agenda for Sustainable Development” (Mpfu, 2023), which is caused by the high level of the shadow economy, high unemployment, poverty, obvious income inequality, and political instability. The introduction of tax holidays and “tax incentives for the digital transformation of accounting, provided to micro, small, and medium-sized enterprises, in particular for the implementation of SAF-T (PT) for accounting, QR Code®, and ATCUD” (Lemos et al., 2023) is becoming increasingly relevant.

In support of the need to prove Hypothesis H2, it is worth emphasizing that “tax policymakers risk exceeding their authority” (Wolfers & Stephanny, 2024), “tax administrations should consider the need for strategic planning, regulatory support, and global cooperation to effectively use digital technologies in tax compliance” (Belahouaoui & Attak, 2024). This should be done in order to avoid mass and rapid closure of companies as a result of increasing taxes, which can ultimately lead to an undesirable increase in “unemployment and inflation rates, which are the main economic indicators of sustainable development” (Girdziuskas et al., 2022).

Arguing the need for proven Hypotheses H3, it is worth emphasizing that “traditional taxation and accounting procedures have undergone a radical transformation thanks to digital technologies, which offer more efficient methods and have a tangible impact on customs operations” (Shubailat et al., 2024, p. 61). At the same time, “digital transformation of the fiscal and tax sphere restrains regional carbon emissions and promotes regional ecological development through the effect of green technology innovations and the effect of the development of ecological finance” (Lv & Wu, 2024). The presence of “weak rule of law exacerbates the problem of taxation” (Pulatov, 2024, p. 232). In addition, the implementation of Industry 4.0 for sustainable transformation requires a quality e-business taxation system and overcoming challenges such as “the lack of standards and regulations, government support, security and privacy, existing environmental side effects, underdeveloped infrastructure, legal and contractual uncertainty, as well as difficulties in coordination and cooperation” (Saraji et al., 2021, p. 4).

4. Results of the research

4.1. Challenges of the digital entrepreneurship taxation system

With the rapid development of e-commerce and DE, governments of all countries of the world faced the issue of developing new “rules of the game” for Internet trade, “prescribing” clear rules for collecting taxes from DE and digitized production. For this, conferences of various levels were systematically held during which the framework conditions of taxation in e-commerce were worked out (OECD, 1998, 2001). “Digital taxation includes tax policy regarding special tax rates for enterprises, corporations that offer products/services in digital form” (Kwan et al., 2022, p. 4). Currently, most countries in the world “have introduced various taxes to collect revenues from the digital economy, namely: mobile money taxes, excise taxes, value-added taxes, and digital services taxes” (Mpfu, 2023). A common vision in terms of the formation and development of global e-commerce is in the coordinate system

of creating a powerful institute of “trust for users and consumers” (OECD, 1998, p. 5) in the context of convergence of economies, development of e-commerce information infrastructure, establishment of new rules for the digital market, outline of maximization of benefits from e-commerce and Internet trade (OECD, 1998, p. 6). Moreover, in the 21st century, it was social networks that contributed to the increase in sales and developed e-commerce. “Regular communication with influencers involved in sales stimulates both online and offline sales of companies” (Štreimikienė et al., 2021, p. 189), which of course should increase the budgets of countries from the payment of taxes by economic agents.

There is a need to investigate the reasons why digital enterprises avoid paying taxes. This becomes possible when the country is institutionally weak, and regulatory institutions are unreliable. Under such circumstances, the institute of intellectual property doesn’t work effectively, it becomes impossible to tax income from the use of intangible assets in full (Figure 1).

They single out 4 factors influencing the behavior of an entrepreneur in compliance with tax legislation, namely: economic, psychological, institutional, and social (Gangodawilage et al., 2022, p. 1279). With the rapid development of the digital economy, scientists emphasize a number of new factors, including: “the development of the Internet and ICT, the erosion of the tax base and the removal of profits from taxation, social presence, third-party reporting, moral risk, perceived risk, ease of use of electronic reporting, systemic integration” (Gangodawilage et al., 2022, pp. 1292–1294).

H1: *The introduction of moderate taxes for DE and e-business demonstrates positive dynamics in the full budget.*

DE and digitized production have certain peculiarities in the course of functioning, and therefore the taxation model for DE should be worked out based on the new virtual reality. Tax systems in the course of taxing digital business should take into account: network interactions and synergistic effects, volatility and virtuality of business, tendencies towards monopolization in the sector in which the business operates, the ability to quickly change the conduct of a business case, variety of digital business models.

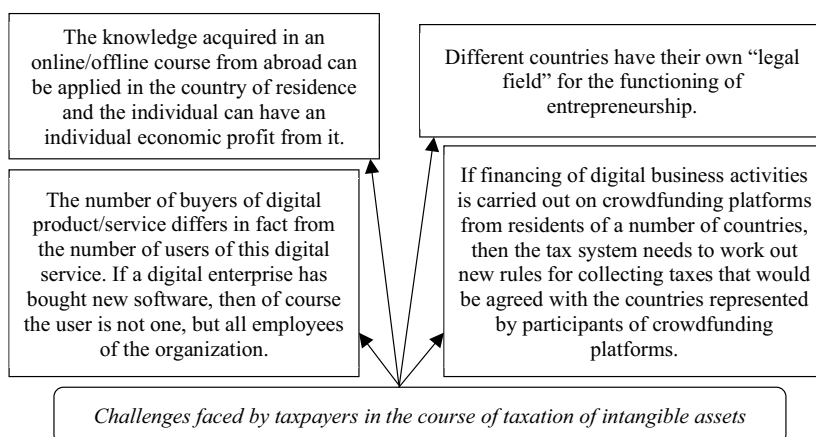


Figure 1. The difficulty of taxation of intangible assets through the prism of features and challenges faced by a digital enterprise (source: based on OECD, 1998, 2001; Hadzhieva, 2016) and own observations)

A product produced by a virtual business, e-production during DE, is subject to taxation. This product is considered to be digital, and as such, “that is stored, delivered, and used in an electronic format, it is a product and service that a customer receives by e-mail, downloads it from the Internet, or registers on a website” (Quaderno Team, 2023). Automated compliance checks and optimization of tax and digital taxation activities significantly increase customs efficiency and effectively meet sustainable development goals (Shubailat et al., 2024, pp. 61, 64), and business digitalization is gaining relevance for environmental sustainability (Lemos et al., 2023) and sustainable economic growth through the use of technology and robots (Duta et al., 2024).

The expansion of the tax base for digital product/service was observed in the 21st century, when e-commerce and Internet trade began to develop. Starting from July 01, 2021, Austria, Denmark, Czech Republic, Cyprus, Ireland, Luxembourg, Spain, Poland, Slovakia, Romania, Slovenia, Sweden, Great Britain will oblige non-resident suppliers and online platforms that sell small batches of goods worth less 150 EUR and deliver them from outside the EU to consumers in these countries (B2C), register as VAT payers and pay it regardless of the amount of the sale (KPMG, 2024, pp. 91, 103, 119, 125, 134–135, 138, 140–141, 146). The characteristics of the tax on digital product/service and virtual business in Great Britain, France, and Austria are presented in Table 2.

“The digital economy creates challenges for VAT collection, especially if goods, services and intangible assets are purchased by private consumers from suppliers abroad” (Pulatov,

Table 2. Characteristics of tax on digital product/service and virtual business in Great Britain, France, Austria (source: compiled on the basis of KPMG, 2024, pp. 5, 10, 13–14, 20, 23–24, 68–69; Enache, 2024, pp. 15–16, 20; Borders et al., 2023, pp. 4, 7; Annie, 2024; Hadzhieva, 2016; Eurostat, n.d.)

Country	Tax	Tax amount	Characteristic features, recovery procedure	Examples of amounts of income to the budget as a result of tax payment
Austria	Tax on digital services	5%	Introduced from 2020 and applies to revenues received from online advertising provided by companies with global revenue of more than 801 million USD and Austrian revenue of more than 27 million USD.	The income received in 2023 from this tax is 0.33% of the income received from the corporate tax.
Great Britain		2%	It is applied in practice since April 01, 2020. It is collected from the income of the social media platform, Internet search engines and online markets. The first 31 million USD is not subject to taxation.	In the 2020–2021 fiscal year, the tax attracted 342 million USD to the budget. In 2023–2024, revenues in the amount of 548 million USD are expected.
France		3%	Introduced on January 1, 2019, a fee is imposed on gross income received from digital interface services, targeted online advertising and data sales. Charged to companies with more than 801 million USD in global revenue and more than 27 million USD in revenue in France.	Generates 533 million USD annually, or 1.01% of corporate income tax in France.

2024, p. 232). VAT is “important for the economy... it has a positive effect on filling the budget, provides a stable income base, and plays a key role as an incentive to control costs and promote savings” (Kwan et al., 2022, p. 8). From December 08, 2022, the European Commission (n.d.-b) has proposed a number of measures to modernize, simplify and strengthen the VAT system through digitization and, at the same time, fight against VAT fraud. “The European Digital Single Market aims to put technology to work for people in a fair and competitive digital economy, and EU businesses to grow in a simpler, fairer environment and overcome barriers to cross-border online sales” (European Commission, n.d.-c).

Starting from January 1, 2015, Germany applies a VAT registration threshold of ten thousand EUR for digital service providers from the EU (KPMG, 2024, p. 113). In the USA, according to state-level regulations, online sellers are required to pay state sales taxes if those sales reach state-mandated thresholds (200 transactions or 100 thousand USD) (KPMG, 2024, p. 147). From January 1, 2019, Poland applies a VAT registration threshold of ten thousand EUR for digital service providers registered in the EU (KPMG, 2024, p. 134).

3.2. Impact of tax rate changes on e-commerce activities

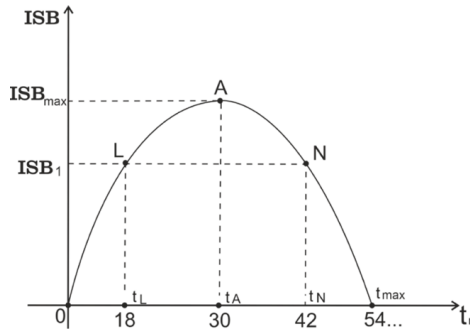
When introducing taxes on digital services, the governments of all countries should immediately take care of the development of detailed methodological guidelines, according to which both tax institutions and digital enterprises could work transparently. The issues of the correct and reasoned calculation, collection, and administration of the tax on digital services remain open for resolution (Enache, 2024, p. 18).

H2: *An increase in the amount of taxes leads to the search for ways to avoid paying taxes by the company or its closure.*

Investment decisions by owners of digital enterprises are influenced by the results of the assessment of economic effects and expected income. Digital business owners try to take into account the actions of state and local authorities in matters of taxation as much as possible. As the founders of a digital enterprise, they are interested in what amounts of free financial resources will remain at their disposal after paying mandatory payments to budgets. An increase in tax pressure on innovative DE leads to a decrease in business activity.

The American economist Arthur Laffer (2004) clearly demonstrated the dependence of the volume of state budget income and the size of the tax rate (Figure 2).

The hypothesis put forward by Laffer was that “the reduction of tax rates will not lead to the appearance of a budget deficit... the curve reflects the ratio of tax rates and the amount of total tax revenues in the country” (McConnell et al., 2009, p. 720). It can be seen on the graph: as the tax rate increases from 0 to point A, tax revenues increase from 0 to 30% (of their maximum level), and then decline again. From a certain point, the total tax revenues begin to decrease. This is due to the fact that higher tax rates restrain the economic activity of digital enterprises, which leads to a reduction in the tax base. This applies to both domestic product and income. Under the condition of the maximum size of tax rates (some $t_{\max} \approx 100$), tax revenues will be equal to 0, and digital production will close (McConnell et al., 2009, pp. 720–721).



Note: ISB – income of the state budget from the central processing unit, billion monetary units; t_r – tax rate for enterprises engaged in innovative and digital activities, %; t_A – tax rate that provides the maximum revenue for the budget.

Figure 2. Graphical interpretation of the Laffer curve for DE (source: specified drawing based on McConnell et al., 2009, p. 720)

Digital enterprises are no exception. The activities of such enterprises are associated with a high level of risk from innovative activities and work with digital technologies, because they may not be requested by the consumer for reasons of high cost, or available substitute goods available at the price and quality characteristics, or lack of necessary complementary goods, or inability to use an innovative digital product/service.

As A. Laffer (2004) explained, at point *N* the tax rates are so high and overwhelming for the enterprise, including for innovative and digital ones, that they hinder digital production so much that tax revenues to the budgets are below the desired maximum level, which corresponds to point *A*. If on the curve Laffer through the prism of the formation and development of DE, the scientist's explanation can be interpreted as follows: if tax rates are reduced from point *N* to point *L*, the economy will receive a powerful incentive for innovative and digital development, while tax revenues to the budget will remain at the previous level. This is explained by the fact that lower tax rates create incentives to work, create a desire to save, stimulate investment activity, and "instill" in digital individuals the desire to take on the risks of virtual business and DE. As a result, all this contributes to the expansion of real digital production, innovative entrepreneurship, and increased profits.

Now, when choosing one or another tax policy of the country's government, it is necessary to take into account all benefits, and losses. An expanded tax base can support tax revenues at the previous level even with lower tax rates. So, you can see on the graph that as the rate decreases from point *N* to point *A*, tax revenue increases. Looking at DE through the prism of Laffer's research, it becomes obvious that when tax rates are reduced, the scale of DE increases with tax optimization (which is a legal method) and, moreover, tax evasion is significantly reduced. The situation looks diametrically opposite if the stakes are extremely high. This causes digital enterprises to want to avoid paying taxes using shady methods or to hide their income from the tax service, for example, by keeping "double" accounting. The reduction in tax rates "weakens the desire" of digital enterprises "to optimize and avoid taxes" (McConnell et al., 2009, p. 721).

3.3. Improving the quality of taxation of digital entrepreneurship

A. Smith believed that excessive taxes lead to the fact that it becomes unprofitable for entrepreneurs to engage in their activities, which leads to the closure of enterprises and the emergence of a “shadow economy” (Smith, 1776). The principles of taxation during the time of A. Smith acquired some clarification, expansion, and improvement, based on the emergence of e-commerce, Internet trade, and DE. The characteristics of the principles of taxation are presented in Table 3.

Table 3. Content and comparative characteristics of the principles of taxation in 18–19th centuries (source: compiled by the authors based on Smith, 1776, pp. 463–465; OECD, 1998, 2001, p. 10; Enache, 2024, pp. 5–6)

Principles of taxation according to A. Smith	Modern principles of taxation of DE, e-commerce and Internet trade
Proportionality	Neutrality
Certainty	Clarity and simplicity
Convenience	Efficiency
Justice	Flexibility
	Justice
	Transparency
	Stability

H3: *Compliance with the principles of taxation by the country encourages business to e-commerce and digital presence.*

In 2018 the European Commission proposed to apply the economic category of so-called “digital presence”. Based on the digital presence of the enterprise in a certain country, it is possible to tax the profits received by it from the sold digital product/service (Figure 3).

Digital products that form the assortment map of the digital market and are responsible for its formation are subject to taxation. Digital product/service include “e-books, photos, videos, music, i.e., audio, visual, or audiovisual products; cloud software and products as a

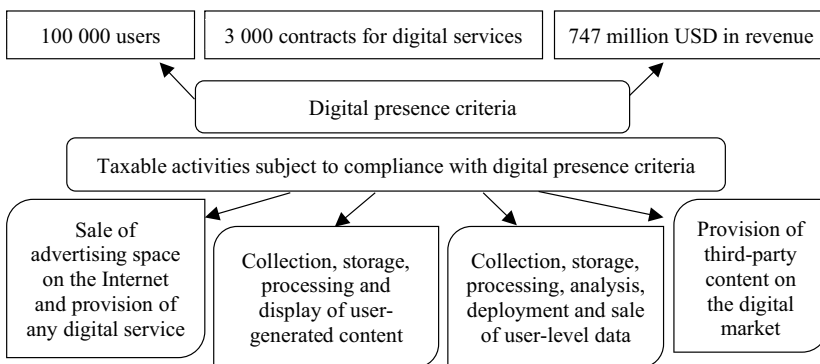


Figure 3. Digital presence criteria and taxable digital activity (source: grouped on the basis of European Commission, n.d.-a; Enache, 2024, pp. 26–27)

service, namely: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS); websites, hosting services, and Internet service providers; online advertising and affiliate marketing" (Quaderno Team, 2023). At the same time, in a number of countries the so-called "tax preferences for digital business, which is understood as a support policy, for example for research and development, credits are provided that reduce the tax burden on digital business" (Kwan et al., 2022, p. 4).

Among the proposals that should be adopted by governments of countries in order to speed up the quality of the digital business taxation system, it should be mentioned the obligation of digital enterprises to provide territorial tax inspectorates with data on the results of their digital activities and the location of the end consumer of digital products/services. When a consumer buys, for example, the latest software, this consumer must have and provide his data for verification. These include the buyer's IP address; the billing address of the buyer; various commercial information as necessary for tax clarification; the country code of the buyer's SIM card; bank details of the buyer; and the location of the fixed communication network. It is also necessary to provide data on the place of performance of the service and the location of the supplier.

For business, there is currently a need to comply with quality regulation and combine the conditions of "commercial secrecy" with the principles of transparency. In order to secure the functioning of economic entities from cybercriminals and speed up scheduled audits, tax authorities should implement, as a mandatory condition for digital enterprises and virtual businesses, the registration of their digital address number and have the digital addresses of their suppliers and customers (Enache, 2024, pp. 11, 13).

5. Discussion

The purpose of the study was to identify the impact of the size of the tax on filling the budget, to find out the specifics of the tax on digital services, in order to provide practical recommendations for improving the taxation system of digital business in the conditions of global convergence. "Trusting in the technologies used by tax institutions, the powers of tax authorities during the implementation of a technology-oriented tax system exerts a powerful influence on the transparency, timeliness, and effectiveness of compliance with tax legislation" (Gangodawilage et al., 2021, p. 366). The study provides insights into the interrelationships between taxation principles and the characteristics of digital business taxation that are needed to address "base erosion and facilitate the benefits of the best international inclusive digital economy taxation policies" (Mpofu, 2023).

With the use of graphic modeling, we will reveal patterns of influence of the amount of tax on the prospects of conducting digital business in different countries. The results of the study allow to confirm the proposed Hypotheses H1 and H2 in the part that new models of business conduct require improvement of the tax system through the prism of the development of uniform international rules for taxation of e-production, virtual business, e-commerce, and Internet trade. "The development of digital technologies allowed enterprises to hyper-fast scale their activities through competition" (Gangodawilage et al., 2022, p. 1274), "effective entrepreneurship leads to the creation of a new format of jobs" (Adam et al., 2025, p. 5), and

“digital taxation is connected with economic innovations” (Kwan et al., 2022, p. 5). “With the increase in regional carbon emissions, the green development effect brought about by the digital transformation of fiscal and taxation shows a tendency of gradual weakening” (Lv & Wu, 2024). Currently, “entrepreneurs and small businesses are using these digital technologies and platforms to improve their businesses, which has given rise to the term ‘digital entrepreneurship’” (Mpofu, 2023).

At the same time, digital finance affects tax non-compliance by small businesses by easing restrictions on corporate financing and collecting digital information that is related to taxes (Ouyang et al., 2023). This made it possible to draw conclusions that expected performance and social influence people’s behavioral intentions in terms of using e-money (Pobee et al., 2023). Among the relevant conclusions after the graphic modeling in this study is the understanding of the obvious reasons for attempts to avoid paying taxes by digital enterprises and virtual businesses. Exaggerated taxes at the initial stages of the formation of DE and during the conduct of their business activities cause the desire of digital business entities to go “into the shadows”, and conduct “double bookkeeping”. This is caused by the overwhelming amount of taxes and their administration. In addition, “digital business transformation has a significant impact on economic innovation and the sustainability of small and medium-sized enterprises in emerging markets” (Al Omoush et al., 2025).

Hypotheses H1 and H3 are tested by the fact that “taxation is a complex but important fiscal tool used by the government to balance fiscal efficiency and social welfare of the country” (Gangodawilage et al., 2021, p. 366). But “economic growth slows down when commodity prices rise, wages rise disproportionately, and the influence of the state or monopolies is negative in terms of price increases. When these factors are activated, cost-push inflation occurs” (Girdzijauskas et al., 2022, p. 6). “Taxing the digital economy potentially increases government revenues to finance public spending and promote economic growth” (Mpofu, 2023). This is because digital product/service are more intangible than tangible assets. So, for example, there were 29 such companies in France in 2019, 35 in 2020, and 37 in 2021. In Great Britain for the 2020–2021 fiscal year, there were 18 such companies and they paid 416 million EUR to the budget, and in 2022 their number increased by 101 companies (Borders et al., 2023, pp. 12–13). “Digitalization, including through artificial intelligence and blockchain, significantly improves tax compliance and operational efficiency” (Belahouaoui & Attak, 2024). And despite the fact that “digitalization brings a number of advantages to economies as a result of the taxation of e-commerce transactions, it still leads to an artificial decrease in taxable income or, in general, to the transfer of profits to a jurisdiction with a low level of taxation, in which the economic activity of the business is low-agents, or there is no economic activity at all” (Gangodawilage et al., 2022, p. 1274), digital transformation is undermined and opportunities for DE to expand (Mpofu, 2023) are lost due to “lack of skilled labor, competence in new business models, resistance to change, lack of awareness of the benefits of data management and the cost of implementation” (Saraji et al., 2021, p. 4).

Among the proposals that should be adopted by governments of countries in order to speed up the quality of the digital business taxation system, it should be mentioned the obligation of digital enterprises to provide territorial tax inspectorates with data on the results of their digital activities and the location of the end consumer of digital products/services.

“Taxpayer identification is one of the first and most important steps to ensure tax payment by businesses” (Pulatov, 2024, p. 238). When a consumer buys, for example, the latest software, this consumer must have and provide his data for verification. These include the buyer’s IP address; the billing address of the buyer; various commercial information as necessary for tax clarification; the country code of the buyer’s SIM card; bank details of the buyer; and the location of the fixed communication network. It is also necessary to provide data on the place of performance of the service and the location of the supplier. “The challenges of implementing and integrating AI and blockchain technologies into tax systems remain unresolved, especially in emerging economies, and discussions on Digital Tax Administration 3.0 highlight the importance of regulatory frameworks, digital capacity building, and tax simplification for small and medium-sized enterprises” (Belahouaoui & Attak, 2024). Currently, gaps in tax policy lead to either over- or under-taxation, and existing rules for traditional businesses are ill-suited to businesses transitioning to digital technologies (Wolfers & Stephany, 2024).

For business, there is currently a need to comply with quality regulation and combine the conditions of “commercial secrecy” with the principles of transparency. In order to secure the functioning of economic entities from cybercriminals and speed up scheduled audits, tax authorities should implement, as a mandatory condition for digital enterprises and virtual businesses, the registration of their digital address number and have the digital addresses of their suppliers and customers (Enache, 2024, pp. 11–13). Digital accounting simultaneously increases data accuracy and e-business process efficiency, offering the opportunity to improve operational efficiency in compliance with the complex and sustainable development practices (Shubailat et al., 2024, pp. 61, 66–67). In today’s business environment and its structural components, namely: financial, market, political, and legal environment, can weaken the socio-economic effect of dependence on available resources on economic growth (Guo et al., 2024).

6. Research limitations and mitigations

The conducted research complements the discourse on taxation of companies producing digital product/service and creates a basis for future research, practical steps, and management decisions. The scientific work is focused on the objectivity and comprehensiveness of the obtained results, and methodological accuracy, but it is not without limitations, in particular, regarding the bias of the search database of publications, which to some extent reduces the completeness of the coverage of the literature. In addition, the use of only bibliographic materials available in the Scopus or WoS database limits the possibility of scientific review and evaluation of works in non-English-language articles or articles with a low level of citation, as well as publications published in countries with a low level of data openness. However, such scientific materials may also contain valuable theoretical and practical results that need to be taken into account and used in further research.

7. Conclusions

According to the results of the research, it is evident that e-commerce, virtual business, and DE are developing, acquiring new forms of functioning, and paying taxes to the budgets of

various levels in all countries, actively filling their revenue parts. It is worth developing agreed standards and conducting tax policy on a multilateral basis, striving for equal treatment of both offline business and virtual business models (Enache, 2024, p. 2). Among the measures that would contribute to the expansion of the tax base and improve the quality of taxation of DE, it is worth mentioning:

- The introduction of a progressive tax on digital transactions for the digital service provider;
- Avoidance of manipulations and compliance with tax legislation when paying taxes by digital business through accelerated implementation of digital technologies by tax institutions (Gangodawilage et al., 2021, p. 368);
- An effective solution to the issue of security and reliability of payment systems of countries during the payment of taxes (OECD, 1998, p. 9);
- Improvement of the mechanism for eliminating the possibility of double taxation (double taxation occurs when a number of countries adjust the definition of permanent establishments when developing the policy of taxation of corporate income of digital business) (Enache, 2024, p. 3);
- Introduction of “tax benefits and tax incentives for the digital transformation of accounting” (Lemos et al., 2023);
- Quality control by national and global fiscal institutions and effective work of legislative bodies in terms of support and reporting on e-business activities on environmental sustainability (Iqbal et al., 2025);
- The introduction of a special tax, which should be generally equal to the estimated cost of damage to the environment that occurs during the production of each unit of production;
- Development of new rules, tax officials together with entrepreneurs, with relevant clarifications on tax administration, for digital products sold and digital services provided by digital enterprises, not based on their offline work in the country but based on their online presence in the country;
- Taking into account the size of the assets of the digital company, the place of sale/market of the digital product/service, the number of employees and users of digital content during the taxation of the activities of digital enterprises and virtual businesses.

In light of the progressive development of the digital, sharing, circular, and gig economy, the creation of digital products, the emergence of innovative creative leaders, and the need for constant improvement of the taxation system, taking into account the products/services produced in these types of economies, has become ripe. There is a need to study the operation of digital platforms and intermediaries on which digital product/service of digital activity and e-production are implemented.

Author contributions

Kateryna Kraus – introduction, research methodology, results of the research, graphic design, design of literature, technical design. Nataliia Kraus – literature review and meta-analysis, research limitations and mitigations, conclusions and discussion.

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References

- Adam, S., Mohd Fuzi, N., Ramdan, M. R., & Ismail, A. F. M. F. (2025). The effectiveness of digital entrepreneurship ecosystem toward enriching income generation: The moderating role of entrepreneurial intention. *Sage Open*, 15(1), Article 21582440241305361. <https://doi.org/10.1177/21582440241305361>
- Agrawal, D. R., & Wildasin, D. E. (2020). Technology and tax systems. *Journal of Public Economics*, 185, Article 104082. <https://doi.org/10.1016/j.jpubeco.2019.104082>
- Al Omoush, K., Lassala, C., & Ribeiro-Navarrete, S. (2025). The role of digital business transformation in frugal innovation and SMEs' resilience in emerging markets. *International Journal of Emerging Markets*, 20(1), 366–386. <https://doi.org/10.1108/IJOEM-12-2022-1937>
- Annie. (2024). *Digital taxes around the world*. Quaderno. Retrieved August 08, 2024, from <https://quaderno.io/blog/digital-taxes-around-world-know-new-tax-rules/>
- Argilés-Bosch, J. M. Somoza, A., Ravenda, D., & García-Blandón, J. (2020). An empirical examination of the influence of e-commerce on tax avoidance in Europe. *Journal of International Accounting, Auditing and Taxation*, 41, Article 100339. <https://doi.org/10.1016/j.intaccudtax.2020.100339>
- Bassey, E., Mulligan, E., & Ojo, A. (2022). A conceptual framework for digital tax administration – A systematic review. *Government Information Quarterly*, 39(4), Article 101754. <https://doi.org/10.1016/j.giq.2022.101754>
- Belahouaoui, R., & Attak, E. H. (2024). Digital taxation, artificial intelligence and Tax Administration 3.0: improving tax compliance behavior – a systematic literature review using textometry (2016–2023). *Accounting Research Journal*, 37(2), 172–191. <https://doi.org/10.1108/ARJ-12-2023-0372>
- Borders, K., Balladares, S., Barake, M., & Baselgia, E. (2023). Digital service taxes (Note). *EUTAX Observatory*. Retrieved July 15, 2024, from https://www.taxobservatory.eu/www-site/uploads/2023/06/EUTO_Digital-Service-Taxes_June2023.pdf
- Botti, A., Parente, R., & Vesci, R. (Eds.) (2021). *How to do business in digital era? A casebook* (2nd ed.). Salerno-Cracow.
- Chu, X., Bai, Y., & Zhu, B. (2025). Doing business in the city: Environment configurations and firm digital transformation. *Management Decision*, 1–26. <https://doi.org/10.1108/MD-11-2023-2166>
- Doanh, D. C. (2024). ChatGPT adoption and digital entrepreneurial intentions: An empirical research based on the theory of planned behaviour. *Entrepreneurial Business and Economics Review*, 12(2), 129–142. <https://doi.org/10.15678/EBER.2024.120208>
- Duta, C., Carutasu, N., & Brezoaie, R.-E. (2024, May 16–18). The impact of testing in robotics business for sustainable economic growth. In *Proceedings of the 2024 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR)* (pp. 1–5). Cluj-Napoca, Romania. IEEE. <https://doi.org/10.1109/AQTR61889.2024.10554253>
- Enache, C. (2024). *Digital Taxation around the World*. TAX FOUNDATION. Retrieved July 20, 2024 from <https://taxfoundation.org/research/all/global/digital-taxation/>
- Endrődi-Kovács, V., Pérez Garrido, B., & Sebrek, S. S. (2024). Technology adoption of small and medium-sized enterprises and performance in European countries: A cross-country panel cointegration analysis. *Entrepreneurial Business and Economics Review*, 12(2), 97–112. <https://doi.org/10.15678/EBER.2024.120206>
- European Commission. (n.d.-a). *Taxation and Customs Union*. Retrieved July 30, 2024, from https://taxation-customs.ec.europa.eu/taxation_en
- European Commission. (n.d.-b). *Value Added Tax (VAT)*. Retrieved August 08, 2024, from https://taxation-customs.ec.europa.eu/taxation/vat_en
- European Commission. (n.d.-c). *VAT e-commerce – one stop shop*. Retrieved August 04, 2024, from https://vat-one-stop-shop.ec.europa.eu/index_en

- Eurostat. (n.d.). *Main national accounts tax aggregates*. https://doi.org/10.2908/GOV_10A_TAXAG
- Gangodawilage, D., Madurapperuma, W., & Aluthge, C. (2021). Use of technology to manage tax compliance behavior of entrepreneurs in the digital economy. *International Journal of Scientific and Research Publications*, 11(3), 366–370. <https://doi.org/10.29322/IJSRP.11.03.2021.p11150>
- Gangodawilage, D., Madurapperuma, W., & Aluthge, C. (2022). Tax compliance behaviour of entrepreneurs in the digital economy: A research synthesis. *Global Scientific Journal*, 10(2), 1274–1304.
- Girdzijauskas, S., Štreimikienė, D., Griesienė, I., Mikalauskiene, A., & Kyriakopoulos, G. L. (2022). New approach to inflation phenomena to ensure sustainable economic growth. *Sustainability*, 14(1), Article 518. <https://doi.org/10.3390/su14010518>
- Guo, P., He, Y., Scrimgeour, F., Shao, S., & Yu, Y. (2024). The impact of natural resource dependency on green economic growth: A business environment perspective. *Technological Forecasting and Social Change*, 208, Article 123680. <https://doi.org/10.1016/j.techfore.2024.123680>
- Grierson, R. E., Hamovitch, W., Levenson, A. M., & Morgenstern, R. D. (1977). The effect of business taxation on the location of industry. *Journal of Urban Economics*, 4(2), 170–185. [https://doi.org/10.1016/0094-1190\(77\)90021-3](https://doi.org/10.1016/0094-1190(77)90021-3)
- Hadzhieva, E. (2016). *Tax challenges in the digital economy. Study for the TAXE 2 Committee*. Retrieved July 13, 2024, from https://www.europarl.europa.eu/RegData/etudes/STUD/2016/579002/IPOL_STU%282016%29579002_EN.pdf
- Hassett, K. A., & Hubbard, R. G. (2002). Tax policy and business investment. In *Handbook of public economics* (Vol. 3, pp. 1293–1343). Elsevier. [https://doi.org/10.1016/S1573-4420\(02\)80024-6](https://doi.org/10.1016/S1573-4420(02)80024-6)
- Herold, D. M. (Ed.) (2022a). *Digital Entrepreneurship: Curriculum*. Cracow University of Economics. https://ted.uek.krakow.pl/wp-content/uploads/2022/09/Curriculum_v1_web.pdf
- Herold, D. M. (Ed.) (2022b). *Teaching notes for casebook "How to do business in digital era?"*. Cracow University of Economics.
- Hughes, J. F., & Glaister, K. (2001). Electronic commerce and international taxation: A square peg in a round hole? *European Management Journal*, 19(6), 651–658. [https://doi.org/10.1016/S0263-2373\(01\)00090-1](https://doi.org/10.1016/S0263-2373(01)00090-1)
- Iqbal, S., Tian, H., Akhtar, S., & Javed, H. (2025). Effects of green entrepreneurship and digital transformation on eco-efficient e-commerce. *International Entrepreneurship and Management Journal*, 21, Article 8. <https://doi.org/10.1007/s11365-024-01024-x>
- Kollmann, T., Kleine-Stegemann, L., de Cruppe, K., & Then-Bergh, Ch. (2022). Eras of digital entrepreneurship connecting the past, present, and future. *Business & Information Systems Engineering*, 64, 15–31. <https://doi.org/10.1007/s12599-021-00728-6>
- KPMG. (2024). *Taxation of the digitalized economy: Developments summary*. Retrieved July 22, 2024 from <https://kpmg.com/kpmg-us/content/dam/kpmg/pdf/2023/digitalized-economy-taxation-developments-summary.pdf>
- Kraus, K., Kraus, N., & Manzhura, O. (2021). Digitalization of business processes of enterprises of the ecosystem of Industry 4.0: Virtual-real aspect of economic growth reserves. *WSEAS Transactions on Business and Economics*, 18, 569–580. <https://doi.org/10.37394/23207.2021.18.57>
- Kraus, K., Kraus, N., Manzhura, O., Ishchenko, I., & Radzikhovska, Y. (2023). Digital transformation of business processes of enterprises on the way to becoming Industry 5.0 in the gig economy. *WSEAS Transactions on Business and Economics*, 20, 1008–1029. <https://doi.org/10.37394/23207.2023.20.93>
- Kurniati, P. S., & Suryanto, S. (2023). Digital entrepreneurship strategy in the tourism business of the tourism 4.0 Era. *Journal of Eastern European and Central Asian Research*, 10(6), 819–828. <https://doi.org/10.15549/jeecar.v10i6.1503>
- Kwan, W. L., Dorasamy, M., Bin Ahmad, A. A., Jayabalan, J., Kumar, P., & Subermaniam, L. (2022). Digital taxation to promote frugal innovation in institutions of higher learning: A three-decade systematic literature review [version 2; peer review: 2 approved]. *F1000Research*, 10, Article 1055. <https://doi.org/10.12688/f1000research.73318.2>
- Laffer, A. B. (2004). The Laffer curve: Past, present, and future. *Background*, (1765), 1–18. <https://iife.edu.vn/wp-content/uploads/2020/04/Laffer-Couver-Last-Present-and-Future-bg1765.pdf>
- Lemos, K., Dinis, A., & Serra, S. (2023). Green Taxation for SMEs' digital transformation of accounting. In A. Dinis, F. David, L. Pereira, & S. Dias (Eds.), *Taking on climate change through green taxation* (pp. 179–197). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-6684-8592-7.ch007>

- Lv, X., & Wu, Z. (2024). The green effect of digital transformation: The impact of digital transformation in fiscal and taxation on regional green development. *Economic Analysis and Policy*, 81, 787–800. <https://doi.org/10.1016/j.eap.2023.12.025>
- Magliocca, P. (Ed.) (2021). *Doing business digitally. A textbook*. Cracow University of Economics.
- Manzhura, O., Pochenchuk, G., & Kraus, N. (2022). Innovative changes in financial and tax systems in the conditions of digital transformation. *Baltic Journal of Economic Studies*, 8(1), 94–102. <https://doi.org/10.30525/2256-0742/2022-8-1-94-102>
- McConnell, C. R., Brue, S. L., & Flynn, S. M. (2009). *Economics: Principles, problems, and policies* (18th ed.). McGraw-Hill.
- Mpofu, F. Y. (2023). Digital entrepreneurship, taxation of the digital economy, digital transformation, and sustainable development in Africa. In D. Mhlanga & E. Ndhlovu (Eds.), *The fourth industrial revolution in Africa. Advances in African economic, social and political development* (pp. 193–219). Springer. https://doi.org/10.1007/978-3-031-28686-5_10
- OECD. (1998, October 7–9). OECD Ministerial Conference “A borderless world: Realising the potential of global electronic commerce” (Conference conclusions). Retrieved June 22, 2024, from [https://one.oecd.org/document/SG/EC\(98\)14/FINAL/en/pdf](https://one.oecd.org/document/SG/EC(98)14/FINAL/en/pdf)
- OECD. (2001). *Taxation and electronic commerce: Implementing the Ottawa taxation framework conditions* (Report). OECD Publishing. <https://doi.org/10.1787/9789264189799-en>
- Ouyang, J., Liu, Sh., & Li, H. (2023). How does the development of digital finance affect small business tax compliance? Empirical evidence from China. *China Economic Review*, 80, Article 101971. <https://doi.org/10.1016/j.chieco.2023.101971>
- Pobee, F., Jibril, A. B., & Owusu-Oware, E. (2023). Does taxation of digital financial services adversely affect the financial inclusion agenda? Lessons from a developing country. *Digital Business*, 3(2), Article 100066. <https://doi.org/10.1016/j.digbus.2023.100066>
- Prijadi, R., Santoso, A. S., Balqiah, T. E., Jung, H., Desiana, P. M., & Wulandari, P. (2024). Enhancing resilience in digital multi-sided platform start-ups: An exploration of entrepreneurial logic and open innovation strategies. *Entrepreneurial Business and Economics Review*, 12(1), 35–53. <https://doi.org/10.15678/EBER.2024.120103>
- Pulatov, A. (2024). Taxation in the digital economy in Uzbekistan. In R. Urinboyev (Ed.), *The political economy of Central Asian law* (pp. 227–253). Palgrave. https://doi.org/10.1007/978-3-031-55341-7_9
- Quaderno Team. (2023). *India GST guide for businesses*. Quaderno. Retrieved August 06, 2024, from <https://quaderno.io/guides/india-gst-guide/>
- Ray, N., Bag, S., & Chatterjee, T. K. (Eds.). (2024). *Contemporary digital transformation and organizational effectiveness in Business 4.0* (1st ed.). Apple Academic Press. <https://doi.org/10.1201/9781003505013>
- Saraji, M. K., Štreimikienė, D., & Kyriakopoulos, G. L. (2021). Fermatean Fuzzy CRITIC-COPRAS method for evaluating the challenges to Industry 4.0 adoption for a sustainable digital transformation. *Sustainability*, 13(17), Article 9577. <https://doi.org/10.3390/su13179577>
- Shubailat, O. M., Al-Zaqeba, M. A. A., Madi, A., & Khairi, K. F. (2024). Investigation the effect of digital taxation and digital accounting on customs efficiency and port sustainability. *International Journal of Data and Network Science*, 8(1), 61–68. <https://doi.org/10.5267/j.ijdns.2023.10.017>
- Smith, A. (1776). *An inquiry into the nature and causes of the wealth of Nations*. London, Edinburgh. <http://gesd.free.fr/smith76bis.pdf>
- Štreimikienė, D., Mikalauskienė, A., Sturienė, U., & Kyriakopoulos, G. L. (2021). The impact of social media on sales promotion in entertainment companies. *E&M Economics and Management*, 24(2), 189–206. <https://doi.org/10.15240/tul/001/2021-2-012>
- Wolfers, L., & Stephanny, P. (2024). The future of indirect taxation in a digital world. In Y. Xu (Ed.), *VAT in the digital era: Unilateral and multilateral options for reform* (pp. 286–328). Oxford Academic. <https://doi.org/10.1093/oso/9780198888307.003.0014>