SECTION: FINANCE, BANKING, ACCOUNTING AND AUDIT

A BIBLIOMETRIC ANALYSIS ON THE IMPACT OF TAXATION ON DIGIAL GOODS AND SERVICES

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Abstract: *The global debate on the digital economy focuses with increasing frequency and urgency on the imminent arrival of a fourth industrial revolution that is said to create a new digital economy powered by advanced cyber-physical systems covering advanced manufacturing, transportation, services, and even biological systems. Analyzing the accelerated development of the digital economy globally, it is not bold to say that the digital economy is becoming more and more the economy itself; in this context, it becomes difficult to delineate the digital economy from the rest of the economy in terms of taxation. The aim of this paper is to determine the impact of the taxation of the digital goods and services in the development of digital economy and also in the traditional economy. This paper reviews these prior studies about digitalization along with a systematic review of recent articles in top public administration journals, to begin to identify and compare key characteristics of these academic communities, including their core researchers, theories, topics, and methods. In this sense, we used the method of bibliometric analysis. The data needed to carry out the scientific approach were extracted from the Web of Science Core Collection database, one of the most popular platforms in the field of scientific research.*

Keywords: *bibliometrics; digital economy; digital goods; digital services; digital technologies; taxation*

JEL classification: *H20*

1. Introduction

The digitalization of the economy has created a number of complex problems in the field of taxation. Most of these problems relate to the issue of the distribution of taxing rights between states in the context of the taxation of income obtained as a result of cross-border activities. The following main problem with the taxation of the digital economy is highlighted: tax systems established in the 1920s traditionally take into account the principles of source of income and residence. In the new world of globalization and the digital economy, these principles have become significant

obstacles to international trade. It is for this reason that the aspects of the new nexus should be established, as well as the new model for the allocation of taxing rights. This paper presents a critical overview of the political and legal debate surrounding the challenges posed by the digitalization of the economy for the international tax regime. The paper addresses some key challenges inherent in the reform proposals currently under discussion. This paper should serve as a literature review of the similar research conducted in other competence areas in order to provide insight and a basis for this new topic research which is the digital economy.

2. Literature review

The digital economy is an economic sector that includes goods and services, the development, production, commercialization and supply of which depend on critical digital technologies (Aguila et al, 2003).
Recent literature (e.g., Abendin and Duan 2021; Niyazbekova et al., 2021) has suggested that developing the digital economy is a key measure that countries should consider to promote rapid economic recovery in the face of global economic uncertainties.

Most of the existing literature on the digital economy has identified strong links between the digital economy, the ICT sector and development, with general support for a positive impact of ICT sector growth on the economy (Venturini et al, 2015). The main drivers of economic growth related to the emergence and consolidation of the digital economy are productivity gains, externalities associated with knowledge and innovation diffusion, cheaper services for consumers and greater economic competitiveness (Domazet et al., 2020). Perhaps one of the best evidences in favor of the positive impact of the digital economy on economic growth is the emergence of the fourth industrial revolution (or the Industry 4.0 concept), which refers to cyber-physical systems used in production and business connectivity (Schwab, 2017; Schwab and Davis, 2018). Moreover, governments from all continents have already included this concept in their strategic development programs (Neamțu et al., 2019), recognizing the capacity (sometimes) to disrupt, technology being a source of competitiveness for some industries, as well as a necessity for survival for others (Ogrean and Herciu, 2020).

It is clear that international income and corporate tax regimes have not changed in line with these developments. Moreover, the increasing tax inequality between traditional and digital business models, as well as the threat of declining tax revenues, both loom with a sense of great urgency (Ciortin Gangoș R., 2024). Current statistical data support these claims: within the territory of the European Union (EU), traditional international business models are burdened with an average effective tax rate of 23.2%, while international digital businesses are taxed at an average rate of only 10.1% (B2C models) and 8.9% (B2B models). In recent years, the Organization for Economic Cooperation and Development (OECD) and the EU have made several attempts to rebalance the relationship between digitalized and traditional businesses. However, none have managed to come up with proposals that can be recognized by a broad consensus. The ineffectiveness of the ongoing discussions has led European policymakers to unilaterally introduce national

measures primarily aimed at leveling the playing field and obtaining a fair share of the tax revenue pie. Consequently, these unilateral measures need to be carefully analyzed and validated to ensure that they achieve their intended goals (Geringer S., 2021).

The digital revolution is fundamentally changing business strategies, structures and evolution, consumer behavior and regulatory approaches. More than ever, the Covid 19 pandemic has intensified the role of the Information and Communications Technology (ICT) sector in economic and social survival and resilience and has profiled it as a winner compared to other sectors and industries.

The eventual shape and impact of the digital economy are unknown and likely unimaginable, and will depend largely on the pace of change. A gradual rollout of advanced digital technologies can allow time for adjustment and adaptation, while sudden and profound changes will cause more disruption and displacement. Because the digital economy is not monolithic, there will undoubtedly be a wide range of experiences, but we know from history that technology adoption is not a simple, continuous, unchallenged or automatic process. Technologies tend to develop at uneven and unpredictable rates, and implementation can suffer in the face of fragmented and competing standards, especially when there are high demands for connectivity, interoperability and integration across organizations and jurisdictions.

At the heart of the digital single market are digital goods, a term that is constantly expanding and redefining itself, given the variety of goods effectively covered by this name, referring in principle to all goods that are stored, delivered and used in electronic format, such as smartphones, applications, digital music and books, computer-generated design files for 3D printed products, etc. As such, digital goods can be distinguished from physical (or analogue) goods that refer to material things with physical dimensions, but also from services that were traditionally considered to be something that cannot be stored or owned.

The literature describes the term digital goods as any goods that are stored, delivered and used in electronic format. Digital goods are sent electronically to the consumer via email or download from the Internet. The 2011 EU Consumer Rights Directive uses the term digital content, which is defined as data that is produced and supplied in digital form. Its preamble provides the following examples: Digital content means data that is produced and supplied in digital form, such as computer programs, applications, games, music, videos or texts, whether accessed by downloading or streaming, from a tangible medium or by any other means.

In this respect, the specialist literature normally makes a distinction between digital products supplied in physical form and those supplied entirely digitally, for example via the Internet. Situations can vary greatly: the online purchase of a book is a digital transaction, which does not involve the supply of a digital product; on the other hand, downloading the book to be read as an e-book involves the digital contracting for the digital delivery of a digital product. Finally, we are currently witnessing the development of the “cloud computing” which, instead of providing the consumer with a copy of the program, involves the software provider allowing the consumer to access the software provider’s server via the Internet in order to obtain the product. Thus, this new process is more like the provision of a service than a contract for the supply of goods (Hojnik, 2016).

The dominant factor in the growth of digitalization is the improvement of the quantity and quality of digital services. As early as 2008, Williams, Chatterjee and Rossi were trying to enunciate a more precise definition of digital services and goods, arguing that a digital service is an activity or benefit for that party that can provide another with a service or activity through a digital transaction. A digital service provider is an entity that provides a service or activity through a digital transaction. A digital service user is an entity that receives a service or activity of a digital nature.

According to another interpretation presented in the work "Information Security Concerns in Digital Services: Literature Review and a Multi-Stakeholder Approach", Kar and Singhal (2015) consider digital services to be services that are fully automated and controlled by the end user or customer of the service.

In another specialized article entitled "Digital Economy and Digitalization in Historical Retrospective Digital Economy" published by Kozyrev (2019), he provides clarifications on the differences between digital services and electronic services: The initial adjective "digital" refers to the form (or format) of information presentation. This format is not directly related to the material support of the information. And the adjective "electronic" refers to the material form of the signal materialization, that is, the real-time determination of the material carrier of the information. In any case, he believes that it is more convenient to perceive electronic services as an integral part of digital services.

Taking a different approach, Saveliev (2019) studied the issue of security in the provision of digital services and argued that there is a large number of algorithms, methods and methods of analyzing potential IT risks, thanks to which it is possible to protect the business of legal entities in the field of the digital economy. Assessment of crimes during the provision of digital services, preparation for their prevention, all this should be priorities in the conduct of digital activities and should be carried out at regular intervals.

According to the article "Digital services: concept, types, features. Theoretical economics" Nesterenko (2019) argues that during the provision of a digital service, electronic data is exchanged instead of the physical movement of goods. However, this does not mean that the digital service is provided entirely only in digital form and is carried out only through the transfer of digital goods. For example, the digital services provided by the Amazon.com website are able to offer books not only in digital form but can also include the delivery of a physical product.

A digital service is a specialized type of service, i.e. delivered using the Internet. According to Agrawal and Fox (2021), a digital service is an automated online activity that one party can offer to the other party through a digital transaction to improve the quality of life of society with minimal human intervention.

3. Methodology and research methods

This study aims to analyze the relevance of literature in the field of digital goods and services, to highlight its implications of the taxation of these digital goods and services for the economy in general. In this sense, we used the method of bibliometric analysis. The data needed to carry out the scientific approach were

extracted from the Web of Science Core Collection database, one of the most popular platforms in the field of scientific research. We used the key terms: digital goods, digital services and digital economy. Next, the bibliometric analysis carried out on the terms, digital products and services, presents the main information about the authors, focusing on identifying the most relevant authors, affiliations, as well as the way the authors collaborate. The first step in performing this bibliometric analysis was to filter the titles, abstracts and keywords of the authors separately, searching for the group of words "digital goods or services", returning as a result of the search a total of 315 works. The second filter was applied on the language of the works, keeping only the documents written in English, thus decreasing the dimensionality of the database by 6, resulting in a total of 309 works. The last filter applied to the database excluded the data recorded for the year 2025, since this year is not over, thus resulting in a final number of 302 works. The analysis of the authors is a crucial step in a bibliometric approach. It involves extracting the most influential researchers on a given topic together with their annual productivity and how they helped the field to evolve.

By using this bibliometric approach on the main concepts described in this section of the paper, the aim was to identify the main factors that facilitate the evolution of the adoption of a fiscal policy appropriate to new digital products and services, aiming to answer the following scientific questions:

• SQ1: Considering the works published in the field of digitization, who are the authors with the most significant impact?
• SQ2: Which are the most relevant universities?
• SQ3: What does the collaboration network between authors for the field of digital products and services look like?

Table no. 1 explores the productivity of authors as a whole, presenting the top 10 authors with the most publications.

Autor	Number of articles	% of Number of articles
Ponomareva KA	9	2.913%
Mpofu FY	4	1.294%
Ahmad M	3	0.971%
Brauner Y	3	0.971%
Greil S	3	0.971%
Kim YR	3	0.971%
Pokrovskaia N	3	0.971%
Victorova N	3	0.971%
Afonso JRR	2	0.647%
Belozyorov S	2	0.647%

Table 1: Top 10 most important authors.
Source: Own editing based on data obtained from Web of Science, Analysis of results

We observe that there is one author with the highest number of papers, namely Ponomareva KA. who has a fractional author value of 2.31. It should be noted that

the fractional author value describes the contribution of an individual author to a series of published papers. Mpofu FY has four papers, with a fractional author value of 1.29. Next, there are six authors with three papers published in the field of digital assets.

The most relevant university is the University of Florida Levin College of Law, which has published 3 papers, followed by City University of Hong Kong School of Law with 2 publications. Indian Institute of Technology Delhi Department of Management Studies and The University of Sydney Business School are in third and fourth place, with two papers published each. By analyzing the countries of origin of the universities mentioned above, we have observed that half of them is from the USA, the rest from Russia, Europe, India and China.

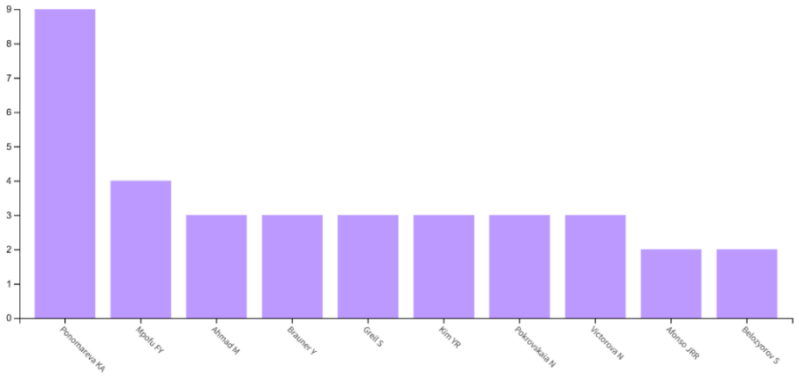

Figure 1: Scientific production of the top 10 authors
Source: Data obtained from Web of Science, Analysis of results

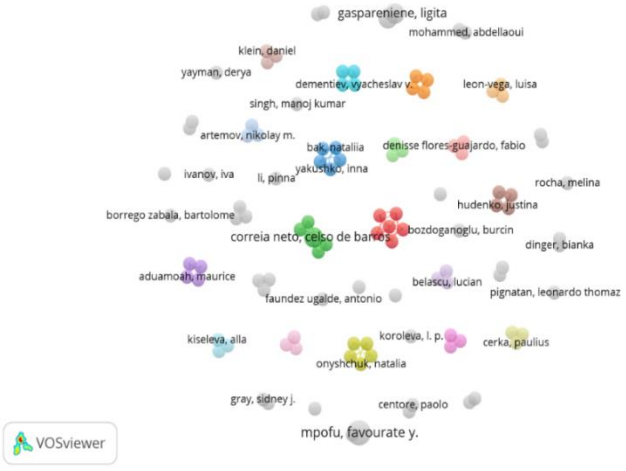

Figure 2: Network map of authors
Sursa: VosViewer, version 1.6.20

Using the VOSviewer program, we created a network map, in which the elements (authors) are represented by labels and circles. The size of the label and the circle is determined by the importance of the element (author) - the higher the importance of an author, the larger the label and the circle. The distance between two authors in Figure 2 indicates the links between them in terms of co-citations. In other words, authors located closer to each other in the network are those who present a higher number of co-citations in the analyzed publications.

4. Conclusion

This study deals with the relationship between the taxation of digital goods and services and the digital economy in general, by conducting a bibliometric analysis based on the evolution of relevant publications, the most important authors of key terms and number of publications.

The results obtained from the literature review validate the research hypothesis regarding the existence of a strong link between the concept of digital economy and digital goods and services. Certainly, the digital economy is intertwined with the traditional economy, but the digital revolution fundamentally changes business strategy, their structure and evolution, consumer behavior and regulatory approaches. This paper proposes systematization of the current knowledge in the area of digital economy, focusing mainly on the concept of taxation of digital goods and services, in order to provide the basis for a completely new study area. The best strategic approach is to find “niches” that reveal and strengthen its long-term comparative advantages and to position itself as a trendsetter in emerging areas. This involves harnessing the political commitment of all states so that different national interests can be brought together into a single global interest – something that has already been achieved when it comes to digital development, regulation and addressing societal challenges.

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