

Taxation of digital corporations: options for reforms

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Abstract — Currently the new industrialization and digitalization of economies leads to the new tax challenges as a result of appearance of new business models, which do not need physical presence to carry out digital transactions. These challenges are generally related to the erosion of tax base and shifting profits by companies, operating in different jurisdictions due to different direct tax regimes. The OECD countries elaborated guidelines (BEPS Project), aimed to address tax avoidance strategies of corporations. Now EU Member States actively discuss the introduction of digital tax, aimed primarily to increase an effective income tax rate faced by digital corporations in order to reduce the gap in profitability between “brick-and-mortar” and digital companies. Recent research showed that there is no systematic difference in effective income tax rate faced by digital corporations compared to traditional ones, and therefore, the underlying proposition in the discussion about taxing digital firms in EU is misguided. We provide an empirical analysis of relationship between profitability of digital corporations and their effective tax liabilities. We exclude big Japanese digital corporations since features of Japanese digital taxation influence essentially on their performance indicators. The results demonstrate that tax expenses of digital corporations, as contrast to effective corporate tax rate, can have an impact of their profitability, measured as after tax profit margin ratio, and whether the digital tax has an impact, depends on its design, notably, availability of tax incentives and exemptions, and the progressivity of tax rate.

Keywords — digital corporations, corporate income tax, digital tax, BEPS, profitability, corporate tax rate, new industrialization, correlation analysis

I. INTRODUCTION

Currently the development of digital economy becomes one of the most important drivers of investment, innovations and economic growth.

The digitalization, which erases physical barriers between producers and consumers in different countries, the appearance of new business models, allowing tax avoidance and tax evasion, lead to the problem of seeking of balance of government interests, related to the increase of investment in digital corporations, on the one part, and minimization of tax avoidance and/or tax evasion by such companies – on the other part.

Now the long-term and short-term measures related to the erosion of tax base and shifting profits by digital corporations are actively discussing. They concern *inter alia* the increase of an effective income tax rate faced by digital corporations in order to reduce the gap in profitability of “brick-and-mortar” and digital companies.

The article aims to summarize the recent activities of developed countries in the area of direct taxation of digital

corporations, and to analyze the relationship between profitability of digital corporations and their effective tax liabilities.

The paper is structured as follows. Section II provides brief literature review related to the current trends of corporate income taxation in era of digitalization. Section III examines the work undertaken to date by the OECD, the UN and the EC on the taxation of the digital economy. The methodology is briefly described in Section IV. Section V provides results of empirical analysis of relationship between profitability of digital corporations and their effective tax liabilities. Section VI concludes.

II. LITERATURE REVIEW

The problem of corporate income taxation in digital economy gained ground recently. Especially it concerns “EU digital tax”, which started to be actively discussed in the second half of 2018. Additionally, it should be noted that the vast majority of papers investigating this issue, are analytical papers of international financial and consulting organizations (e.g. PwC, KPMG, Deloitte, E&Y etc.), and both supranational (UN, OECD, European Commission, European Parliament, Asian Development Bank) [10;17] and national (ministries and commissions of countries, e.g. Australia, India, UK) [2;16] authorities .

The mentioned documents provide background to most of existing academic economic papers related to the corporate income taxes in digital economy. For example, M. Devereux and J. Vella [8] consider theoretical framework related to the implications of digitalization for international corporate tax reform. The problem of transfer pricing in the framework of OECD reform proposals on taxing businesses in the digital economy is examined by M. Olbert and C. Spengel [9]. They propose to refine transfer pricing guidance in order to come closer to the goal of aligning profit taxation with value creation

Some aspects of income taxation of modern multinationals, using Internet and e-commerce platforms, related to the taxes on Internet access were considered by F. Bloch and G. Demange [4] in Special issue on taxation in the digital economy of Journal of Public Economic Theory. The authors concluded that the most effective tax system comprises dual tax rate in which the platform is taxed at a lower rate for access revenues compared to tax rate for revenues linked to data storage and exploitation.

However, the problem of income taxation of digital corporations is not adequately investigated. This is due to rapid evolution of digitalization, requiring rapid reaction from both supranational and national authorities in order to prevent

tax avoidance and tax evasion by multinationals, operating in digital sector.

Below we describe current initiatives of OECD and EU related to the income taxation of digital corporations.

III. CURRENT ACTIVITIES

In 2015 OECD has been adopted a Plan of actions aimed to tackle base erosion and profit shifting (BEPS) by companies, using tax avoidance strategies that exploit gaps and mismatches in tax rules in order to artificially shift profits to low or no-tax jurisdictions.

The main objectives of the BEPS Project, which include package of 15 measures (Actions), are:

to reinforce the coherence of corporate income tax rules at the international level,

to realign taxation with the substance of the economic activities, and

to improve transparency [14, p. 109].

In the context of direct taxation OECD strategy includes four elements.

1) *Minimization of taxation in the market country.* This can be achieved by avoiding a taxable presence, or if this measure is not possible, by minimizing the income allocable to functions, assets and risks in market jurisdictions and/or maximizing deductions in market jurisdictions.

2) *Low or no withholding tax at source.* The liabilities to pay a withholding tax in certain country can occur, when non-resident company receives certain payments from payers in that country.

3) *Low or no taxation at the level of the recipient.* The use preferential domestic tax regimes and/or hybrid mismatch arrangements, or establishment of low or no-tax jurisdiction can contribute to elimination or reduction of tax in an intermediate country

4) *Low or no taxation in the country of residence of the ultimate parent.* This can be achieved by the same techniques as in previous point, but also using an exemption or deferral system for foreign-source income [14, p.78-82].

OECD determined three main challenges raised by the digital economy in the area of direct taxation (although they are distinct in nature, they may overlap each other).

1) *Nexus and the ability to have a significant presence without being liable to tax*

This means the possibility for a business's personnel, IT infrastructure, and customers each to be spread among multiple jurisdictions, away from the market jurisdiction, because of reduced need for extensive physical presence in order to carry on business due to rapid rise of digital technologies. And the task of government is to establish and protect taxing rights in a country, where businesses provides digital services with little or no physical presence.

2) *Data and the attribution of value created from the generation of marketable location-relevant data by use of digital products and services*

The main challenge here is how to characterize for tax purposes a person or entity's supply of data in a transaction. Additional challenges are presented by the increase in the digital sector the multi-sided business models.

3) *Characterization of income derived from new business models*

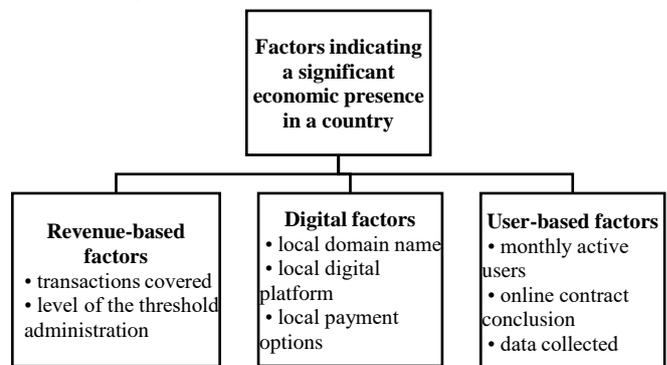
Providing products and services to customers in new ways through digital technologies creates challenges related to the proper characterization of payments, particularly in relation to cloud computing [3, p.99-100]. The European Commission highlights out two main policy challenges: nexus and value creation [1, p.7].

The main options to address the mentioned direct tax challenges of the digital economy, elaborated by OECD, UN, and European commission include the following.

1) *A new nexus based on the concept of significant economic presence*

Here the aim is to find the taxable nexus in a country on the basis of factors determining the sustainable interaction with the economy of that country using digital technologies [6]. According to UN experts, these factors can include the revenues from the source country, the local digital presence, the user-based factors of monthly active users, online contracts concluded, data collection etc. [15, p.25].

The taxable presence can be determined based on factors that evidence a significant economic presence in a country (Fig. 1).



Source: authors; based on [3; 14].

Fig 1. Factors, demonstrating the taxable presence of an economic agent in a country

UN experts proposed another new permanent establishment nexus test based on three components: a *de minimis* revenue threshold, a time threshold, and one thousand monthly users existing in a country [15, p.26].

2) *Determining the income attributable to the significant economic presence*

Attribution of profits, which is a key consideration in developing a nexus based on significant economic presence, can be done through existing rules and principles, methods based on fractional apportionment, and modified deemed profit methods

3) *A withholding tax on digital transactions*

In theory, a withholding tax on digital transactions can be imposed as a gross-basis final withholding tax on certain payments made to non-resident providers of goods and services ordered online or as a net-basis taxation. i.e. the primary collection mechanism aimed to support the application of the nexus option mentioned above.

Both approaches raise similar challenges related to the scope of transactions covered, collection of the tax, and negative impact of gross-basis taxation and relationship with trade and other obligations.

4) *Introducing an “equalization levy”*

In 2016 India introduced an equalization levy on online advertising revenue earned by non-resident e-commerce companies. The tax base is the value of the transactions, not the profits, and only cross-border transactions are covered [2].

The equalization levy that will affect profits is proposed by of European Commission, aiming to avoid certain difficulties arising from new profit attribution rules for purposes of a nexus based on taxable presence. Several countries use this approach to ensure equal treatment of foreign and domestic suppliers. It involves technical issues related to the scope of the levy, potential trade and other issues, and relationship with corporate income tax [3, p.101-117].

In addition, European Commission proposed a levy on revenues generated from the provision of digital services or advertising activity, levied to all transactions concluded remotely with domestic customers where a non-resident company has a taxable presence [1, p.10].

Developed countries worldwide have already taken domestic measures in order to tackle BEPS. In the context of digitalization, the most important are Action 2 and Action 4 of the Plan – approaches related to the limiting excessive interest deductibility and neutralizing hybrid mismatches, respectively (Table 1).

TABLE I. UNILATERAL MEASURES TAKEN BY COUNTRIES TO ADDRESS BEPS IN DIGITAL SECTOR

Action	Country	Current status
Neutralizing hybrid mismatches (Action 2)	EU Member States	EU Council’s Anti-Tax Avoidance Directive 2016/1164/EU (ATAD1), and Directive 2017/952/EU (ATAD2)
	United States	Tax Cuts and Jobs Act (TCJA)
	Japan, Liechtenstein, Korea, Mexico, Norway, South Africa	Partially adopted
	Australia, Malaysia, New Zealand	Reviewing rules to consider full implementation of the Action 2 measures into domestic law
Limit excessive interest deductibility (Action 4)	EU Member States	ATAD1 limit the amount of intra-group net interest that a company can deduct from its taxable income based on a fixed ratio of its earnings (EBITDA)
	United States	Limitation on the deductibility of interest in excess of 30% of a business’s adjusted taxable income (similar to EBITDA)
	Argentina, India, South Korea, South Africa, Viet Nam	Already taken legislative steps, related to the limitation of interest deductibility
	Norway, Japan, Malaysia, Turkey	Align their domestic legislation with the recommendations of Action 4

Source: authors; based on [3; 14]

According to the UN Committee of Experts on International Cooperation in Tax Matters, developing countries will benefit from the introduction of policies addressing the digital economy. Such measures allow countries to increase their abilities to collect revenue, that is particularly important for countries with large consumer markets, because the source country obtains the right to tax with no need for physical presence of economic agents in the markets [15, p.7].

EU DIGITAL TAX

Current estimations show that effective average tax rate for companies, operating in EU 28, is now 20,9% and 23,2% for traditional domestic and traditional international business model respectively, while for digital domestic business model the average tax is 8,5%. For the digital international B2C and B2B model the average tax rate stands on 10,1% and 8,9% respectively. At the same time the revenue and market capitalization of big digital companies grow fast. In 2008-2016, the revenue of the top 5 e-commerce retailers increased on average by 32% per year, while revenue in the entire EU retail sector grew on average by 1% per year during the same period [1, p.4, 6].

Therefore, the issue of elaboration by European Commission of short-term measures to protect the direct tax bases of Member States alongside the work on the long-term strategy in the framework of BEPS arises.

In addition, in March 2018 the European Commission issued two proposals related to the short- and medium-term provisions in the framework of establishment of effective tax system in the EU for the digital single market.

The first one refers to the common reform of the EU’s corporate tax rules for digital activities. These measures allow EU Member States to tax profits, generated in their jurisdiction, even if a company does not have a physical presence there in order that online businesses would contribute to public finances to the same extent as traditional companies.

The main idea is that the “significant digital presence” shall be considered to exist in a Member State in a tax period if one or more of the following criteria are fulfilled by company, operating in a digital sector:

- the proportion of total revenues from the supply of digital services to users located in that Member State in exceeds €7 mln.;
- the number of users located in that Member State exceeds 100 000;
- the number of business contracts for the supply of digital service, concluded in that tax period by users located in that Member State exceeds 3 000 [11, p.16].

The new rules will also change the mechanism of allocation of profits to EU Member States in order to reflect better how companies can create value online.

The second proposal suggests the introduction of an interim tax on certain revenue from digital activities. As contrast to the first reform of the EU’s corporate tax rules, this indirect tax would apply to revenues generated by certain digital activities, escaping the current tax framework entirely. It should be noted that this system will apply only as an interim measure, until the common and comprehensive reform has been implemented.

This interim tax will apply to the following types of revenue:

- revenue generated by selling online an advertising space
- revenue generated as a result of digital intermediary activities, allowing the interaction between users and facilitating the sale of goods and services between them
- revenue arising from transactions related to the collection and transmission of data from user-provided information.

In order to be considered the taxable person, the entity should meet both of the two following conditions for the relevant financial year:

- the total annual worldwide revenues exceeds €750 mln, and
- the total taxable revenues obtained by the entity within the EU exceeds €50 mln. [12, p.25-25].

According to the estimations, the introduction of this tax at a rate of 3% can generate €5 billion in revenues a year [5].

To summarize, the main reason of introducing the EU digital tax is to increase an effective income tax rate faced by business agents, operating in digital sector in order to narrow the gap in profitability of “brick-and-mortar” and digital corporations.

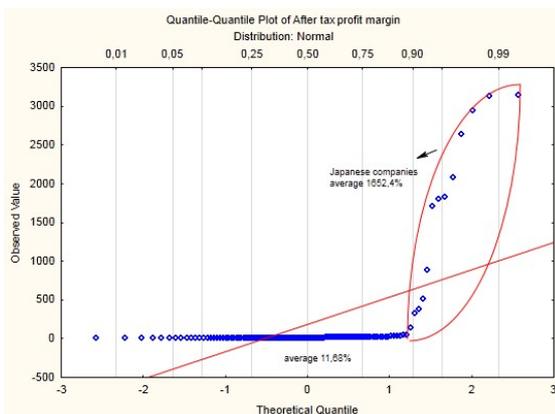
IV. METHODOLOGY

To analyze relationship between profitability of digital corporations and their effective tax liabilities, we use performance indicators of 100 digital companies worldwide by 2012-2016. Primary data were taken from Bauer [7], and include data of net sales, earning before tax (EBT) and tax expenses. The tax expenses data include only provisions for income taxes.

Research methods include correlation analysis and graphical analysis.

V. RESULTS AND DISCUSSION

We calculated pretax margin ratio (by dividing EBT to net sales) and after tax margin ratio (by dividing income after tax to net sales). Fig. 2 presents the results of calculation of after tax margin ratio, i.e. profitability of companies after paying corporate income tax.



Source: authors’ calculations; based on [7]

Fig. 2. Distribution of after tax profit margin of 100 digital companies worldwide, average for 2012-2016

There are 13 companies (Yahoo Japan, Kakaku.com, MIXI, OBIC, Nexon, Oracle Corp Japan, Trend Micro, Dena, Nomura Research Institute, Konami, Otsuka, NTT Data, Fujitsu) with highest after tax margin ratios – average rate is 1652,4%, while average after tax profitability for remaining 87 entities is 11,68%. The headquarters of all these companies are located in Japan.

Additionally, we estimated the share of tax expenses in net sales (revenue) in 100 analyzed companies. This ratio for mentioned 13 Japanese companies falls within 2,3%-18% (see Table 2), while for other companies it does not exceed 0,15%.

TABLE II. PERFORMANCE INDICATORS OF JAPANESE DIGITAL COMPANIES, AVERAGE 2012-2016

Company name	Net sales, USD mln	Tax expenses, USD mln	Tax expenses to net sales ratio
Kakaku.com	290,8	5336,8	18,35
Yahoo Japan	4159	69550,8	16,72
MIXI	654,4	10776,6	16,47
Dena	1631,2	20941,8	12,84
OBIC	532,8	8006,8	15,03
Nexon	1573,8	19153	12,17
Oracle Corp Japan	1552,8	16778,8	10,81
Trend Micro	1128,6	12151	10,77
Nomura Research Institute	4006,2	19488,2	4,86
Konami	2378,4	10093,8	4,24
NTT Data	13891	31812	2,29
Otsuka	5816	13336	2,29
Fujitsu	46038,4	38654	0,84

Source: authors’ calculations; based on [7]

The main reasons of this situation are the following.

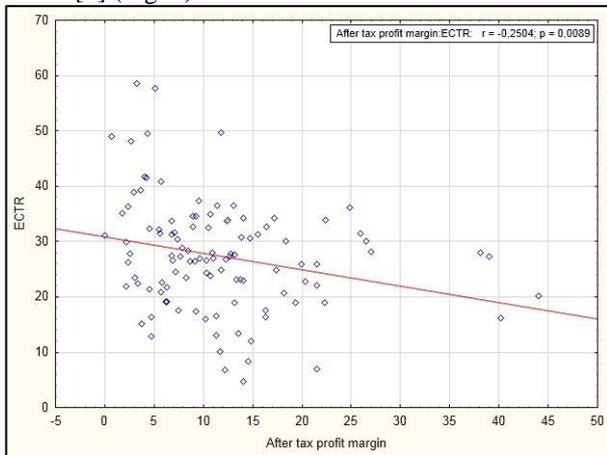
1) The most important is the introduction of consumption tax on e-services, levied on cross border sales of electronic services to Japanese consumers since October 2015 [13]. Digital services include distribution of e-books, online gaming, music and movies, cloud-based services, software storage, while telecommunication carrier services are specifically excluded. For B2B supplies, the tax is collected through a reverse charge mechanism, under which the business customer in Japan must account for the consumption tax on the purchase of e-services from the foreign supplier. It is important to emphasize that business with taxable sales ratio of 95% or more do not need to include the reverse charge supplies in their consumption tax return. Such a scheme leads to the increase of EBT of Japanese digital companies at relatively low net sales.

2) The implementation of Action 2 BEPS related to the hybrids since April 2016. Under this Action, the deductible dividends are not exempted for the Japanese tax purposes, so the EBT increases.

3) The relatively high corporate income tax rate in the country: according to KPMG, in 2012 it was 38,01% that scaled down to 30,86% in 2016, that makes corporate income tax expenses for Japanese companies relatively high.

Therefore, due to mentioned reasons we excluded from further analysis these 13 Japanese companies.

Next, we compare after-tax margin with efficient corporate income tax rate, faced by these entities, calculated by Bauer [7] (Fig. 3).

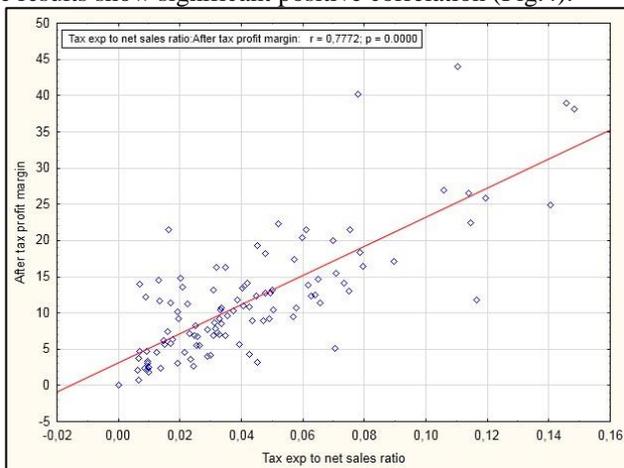


Source: authors' calculations; based on [7]

Fig. 3. Correlation between after tax profit margin ratio and effective corporate tax rate (ECTR) for 87 digital companies worldwide, average for 2012-2016

The results show slightly negative correlation between after-tax margin and efficient corporate income tax rate. Bauer [7] obtained similar results, by comparing efficient corporate income tax rate and net profit to net sales ratio ($r = -0,13$) for all 100 companies. According to that, he made a conclusion that many digital companies with low profitability faced to higher effective corporate tax rates compared to high profitability entities.

However, when we compare after tax margin with tax expenses-to-net sales ratio for 87 analyzed digital companies, the results show significant positive correlation (Fig.4).



Source: authors' calculations

Fig. 4. Correlation between after tax profit margin and tax expenses to net sales ratio for 87 digital companies worldwide, average for 2012-2016

This means that digital companies with higher is the share of expenses related to the payment of corporate income tax, have higher profitability, expressed as income after tax to net sales ratio.

So, the empirical analysis of relationship between profitability of digital corporations and their effective tax liabilities demonstrate that tax expenses of digital companies, as contrast to effective corporate tax rate, can have an impact of their profitability, measured as after tax profit margin ratio. I.e., to have an impact on profitability of digital corporations the digital tax should affect their tax expenses.

In order to achieve such an effect, the main tax policy measures should center around tax design. According to the current tax practice of developed countries, these measures include:

- no tax exemptions,
- no or targeted tax incentives, and
- progressivity of tax rate.

VI. CONCLUSION

Current processes of digitalization of economies lead to the new tax challenges as a result of appearance of new business models, which do not need physical presence to carry out various transactions. These challenges are generally related to the erosion of tax base and shifting profits by companies, operating in different jurisdictions, due to different corporate income tax regimes.

The developed countries worldwide were elaborated appropriated guidelines – BEPS Project, aimed to address tax avoidance strategies of corporations, including digital ones, which exploit in tax rules in order to shift profits to low or no-tax jurisdictions.

Following these guidelines to tackle BEPS in digital sector, in March 2018 the European Commission issued two proposals related to the establishment of effective tax system in the EU for the digital single market. And now EU Member States actively discuss the introduction of digital tax, as an interim measure to protect the direct tax bases of Member States. The main goal of such action is to increase an effective income tax rate faced by digital corporations in order to reduce the gap in profitability of traditional and digital companies. Recent research showed that there is no systematic difference in effective income tax rate faced by digital corporations compared to traditional ones, and therefore, the underlying prerequisite in the discussion about taxing digital firms in EU is misguided.

We provide an empirical analysis of relationship between profitability of digital corporations and their effective tax liabilities, by excluding big Japanese digital corporations due to features of Japanese digital taxation that influence essentially on their performance indicators.

The results demonstrate that tax expenses of digital corporations, as contrast to effective corporate tax rate, can have an impact of their profitability, measured as after tax profit margin ratio, and whether the digital tax has an impact, depends on its design, notably, availability of tax incentives and exemptions, and the progressivity of tax rate.

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