Economic and Mathematical Modeling of Optimization of Taxation of the IT Industry in Ukraine

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Abstract: Currently, there is a transition to a digital economy, which is determined by the growth of the IT sector both in Ukraine and around the world. Moreover, Ukraine's vector of economic development currently appears to promote the expansion of the IT industry. The purpose of the article is to analyze the peculiarities of taxation of the IT industry in Ukraine, as well as to investigate the ways of optimizing the tax of the IT sphere in Ukraine and to investigate the impact of optimization of taxation on the IT industry. The methods that were applied are analysis and synthesis in order to highlight the main provisions of the modern taxation system and determine the features of optimization of accounting and taxation in the IT industry, as well as statistical and economic-mathematical methods – correlation-regression analysis and the exponential smoothing method to make a forecast under three scenarios. The study proved that the conclusion of contracts with the individual entrepreneur is the main form of interaction in the IT industry. It was also determined that IT specialists are a critical factor in the growth of the IT market in Ukraine, as proven by the correlation-regression analysis. Such results determine the need to introduce a special legal regime for the IT industry in order to expand the activities of international companies in Ukraine and national ones, as well as to create more transparent and simpler conditions for cooperation in the IT field.

1. INTRODUCTION

The modern world economic system is undergoing significant transformations and the transition to the digital economy. The information technology industry (IT industry) can be considered the flagship of these changes. This global trend also prevails in the realities of economic development in Ukraine. This is proven by statistical data, which indicate that the IT industry, according to the State Statistics Service of Ukraine (2022), accounted for 4% of GDP (gross domestic product) in 2021. Such indicators play a significant role in the business environment of Ukraine and the development of the state's economy. Ukraine ranks first in Europe in terms of the volume of exported IT services. According to the Association "IT Ukraine" (2022), the number of people employed in the IT industry increased from 91 thousand employed persons in 2015 to 220 thousand employed persons in 2020, and by January 2022, this figure reached 285 thousand employed persons. From this perspective, taxation of the IT

industry in Ukraine appears to be an ambiguous issue for employees and employers (Naumenkova et al., 2022; Trusova et al., 2021). This industry needs additional development of effective taxation and functioning mechanisms and the creation of comfortable conditions for attracting more investments (Bondarenko and Galich, 2013; Cherunova et al., 2018; Lavrov et al., 2020; Sarybayev et al., 2021). Ukrainian IT specialists play a vital role in this process, and the importance of creating an optimal and understandable taxation model will contribute to the more effective development of not only this industry but also the economy of Ukraine as a whole.

The state is trying to change the current taxation model of the IT industry and proposes introducing a single tax space, Diia. City (2022). The study's relevance is due to the introduction of a new legal regime, which is taking place for the first time in Ukraine against the background of the spread of COVID-19 and the crisis state of the economy. All these determinants together bring new challenges and threats to the development of the IT industry in Ukraine. In this context, the experience and peculiarities of taxation in other countries of the world, as well as the dynamics of the development of the IT sector in this context in Ukraine, are interesting. With

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its rapid growth, the dynamic IT market in the world determines the need for the governments of the countries of the world to develop and adapt the taxation system to the realities of the modern digital economy (Kireyeva et al., 2021). In this context, if we analyze the experience of the countries of the European Union (EU), an intermediate tax on digital services is being considered and introduced. However, there are many questions and discussions about this.

Suppose we believe the experience of Romania, which is regarded as in the works of I. Manelici and S. Pantea (2021), it is proposed applying the principles of industrial policy and using tax relief to support the development of the IT industry, but their study does not take into account the possibility of reducing the corporate income tax, as well as the case of state aid (Ivanov et al., 2021). Also, the authors do not investigate the possible consequences of implementing the principles of industrial policy in the development of the IT industry. Asian countries suffer from another problem related to taxation in the IT industry (Batrakov et al., 2016; Bondarenko et al., 2013; Ganiyeva et al., 2015). This is the problem of double taxation, which is investigated in the works of P. Mullins (2022), which raises the question of the definition of direct taxation, that is, the basic principle of taxation is violated. According to this principle, the country where the product was created has the primary right to tax. Still, it becomes more challenging to determine the country where this product was made because no mechanism would fix who the manufacturer is. That is, the producing country is the country where the parent company is registered or the country where the performer lives. The Ukrainian IT industry also faces such a problem because most of the created software is exported abroad.

Based on all of the above, it is possible to formulate the purpose of the research, namely: to analyze the peculiarities of taxation of the IT industry in Ukraine, as well as to investigate ways of optimizing the taxation of the IT sphere in Ukraine and to investigate the impact of optimization of taxation on the IT industry.

2. MATERIALS AND METHODS

Achieving the set goal was realized through theoretical and empirical analysis. Statistical methods and methods of economic-mathematical modeling are used to detail the research. Such methods are chosen in order to simulate the scenarios of the development of the IT industry under the condition of transition to a special taxation regime, which is implemented by Law of Ukraine No. 1946-IX "On Amendments to the Tax Code of Ukraine and other laws of Ukraine on stimulating the development of the digital economy in Ukraine" (2021). And, thus, predict the effectiveness of the implemented special taxation regime, as well as determine its advantages and disadvantages in comparison with the current taxation system, according to the Tax Code of Ukraine (2010).

This analysis was carried out in two stages. First, the current state of the IT industry in Ukraine was analyzed, and the main ways to optimize taxation in this industry were determined. The conclusions are drawn based on a statistical array of data provided in open sources State Statistics Service of Ukraine (2022), the National Bank of Ukraine (2022), and

the Association "IT Ukraine" (2022). The current data analysis is complemented by a forecast using the ETS method (exponential smoothing). This method of forecasting time series, which is based on the fact that the values of indicators for previous periods gradually lose their weight. This method is effective because it gives a predictive value not by determining the average level of the process but by calculating the trend that has developed in the studied time interval. The ETS method makes it possible to react flexibly to any changes in the given indicators and display them without changing the time frame. Construct a forecast using the ETS method, it has the form (1) (Hyndman and Athanasopoulos, 2018; Batrakov et al., 2017; Bondarenko et al., 2017):

$$\hat{y}_{T+1|T} = \alpha \sum_{i=0}^{\infty}(1-\alpha)^i y_{t-1}, \qquad (1)$$

where: $\hat{y}_{T+1|T}$ – the forecast for the T+1, period, that is, for the next period of time following the period under study; α is a parameter that corrects the model by the amount of error.

Otherwise, this model can be expressed as (2) and (3).

Forecast:

$$\hat{y}_{t+h|t} = l_t. \qquad (2)$$

Smoothing:

$$l_t = \alpha y_t + (1+\alpha)l_{y-1}. \qquad (3)$$

The next stage is the construction of a regression-correlation model. It is usually used to determine the relationship between several factors – dependent and independent. In the built model, the dependent outcome variable Y is the level of GDP created by the IT industry. The number of capital investments in the IT sector, the number of graduates of IT specialties, and the number of employees in the IT sector are independent variables. These independent variables directly impact the IT industry's development and are defined as endogenous parameters. The exogenous parameters were the level of the disease due to COVID-19 in Ukraine (this parameter was chosen because the pandemic had a significant impact on the industry and the economy as a whole) and the level of inflation. The time period of the calculation is allocated from 2010 to 2021. In this way, the main trends in the development of the IT industry market have been determined. The regression-correlation model is calculated by setting research objectives, collecting information, calculating the model, and analyzing the model's functioning. The following model was used in this study (4):

$$Y = f(\beta, X) + \varepsilon, \qquad (4)$$

where: $X = X(X1, X2, ..., Xm)$ is a vector of independent variables; β is a vector of parameters; ε is a deviation error; Y is the dependent variable.

The initial data for the calculations are shown in Table **1**.

In general, the study is based on a comparison of the classical system of taxation in Ukraine according to the Tax Code of Ukraine (2010) and the special taxation regime adopted by Law of Ukraine No. 1946-IX "On Amendments to the Tax Code of Ukraine and other laws of Ukraine on stimulating the development of the digital economy in Ukraine" (2021). It should be noted that most often, the IT industry chooses

Table 1. Output Data.

In-dex	GDP, Million UAH	GDP Created by the IT In-dustry, Million UAH	The Share of the IT Industry in GDP, %	Capital Investments in the IT Industry, Mil-lion UAH	Graduates of IT specialties, Individuals	The Disease COVID-19	Inflation	The number of IT Workers, Thousands Of People
2010	1079346	33011	3.06%	8625.8	14447	0	109.1	26
2011	1299991	38390	2.95%	9730.0	14540	0	104.6	31
2012	1404669	43379	3.09%	10167.7	146530	0	99.8	37
2013	1465198	48372	3.30%	9864.0	14726	0	100.5	45
2014	1586915	52724	3.32%	8175.1	16384	0	124.9	75
2015	1988544	72596	3.7%	22975.0	12529	0	143.3	91
2016	2385367	89268	3.7%	15651.2	15166	0	112.4	100
2017	2981227	110296	3.7%	18395.2	15698	0	113.7	166
2018	3560302	138828	3.9%	29884.9	15304	0	109.8	185
2019	3977198	182667	4.6%	21063.4	15124	0	104.1	200
2020	4222026	209394	5.0%	22381.6	15473	83631454	105	220
2021	5459574	246021	4.5%	20128.1	15468	287985758	110	285

Source: compiled by the author based on data from the State Statistics Service of Ukraine (2022).
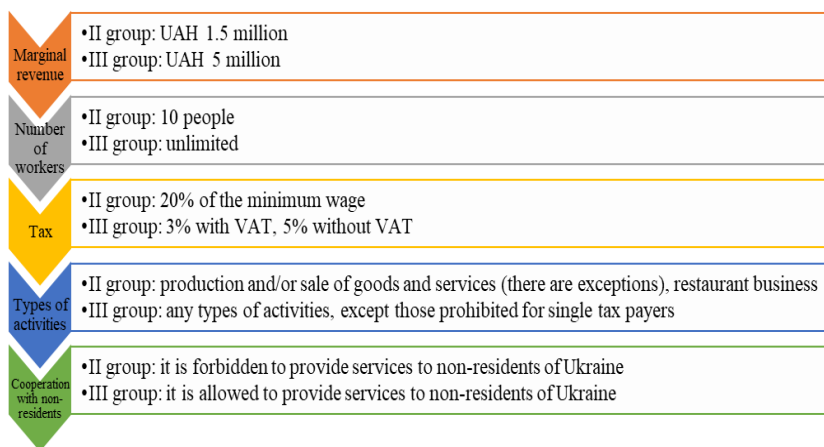

Fig. (1). Comparison of Taxation Groups.

Note: VAT – value-added tax.

among the options of the Classification of Economic Activities (KVED) (2010) for its activity KVED 62.01 "Computer programming", however, the following KVEDs can also be selected as additional ones: 72.30.0 "Data processing", 72.40. 0 "Activities related to databases", 58.21 "Publishing of computer games", 58.29 "Publishing of other software". According to the tax legislation of Ukraine, these types of activities, before the adoption of Law of Ukraine No. 1946-IX "On Amendments to the Tax Code of Ukraine and other laws of Ukraine on stimulating the development of the digital economy in Ukraine" (2021), were equated to ordinary activities and did not require additional licenses. Adopted Law of Ukraine No. 1946-IX "On Amendments to the Tax Code of Ukraine and other laws of Ukraine on stimulating the development of the digital economy in Ukraine" (2021) at the legislative level fixes the creation of a special taxation

regime, including for KVED 62.01 "Computer programming".

3. RESULTS

The first stage is the analysis of the existing taxation system. It should be noted that the research was conducted before the entry into force of the particular legal regime of Diia.City (2022), but author also analyzed the peculiarities of this regime. So, in Ukraine, IT companies usually prefer a simplified taxation system with a single tax payment. The difference is only in the groups of the single tax – II or III taxation group. The difference between these groups is shown in Fig. (**1**).

Based on the given comparison, it can be concluded that IT companies have two ways of functioning in the tax system of
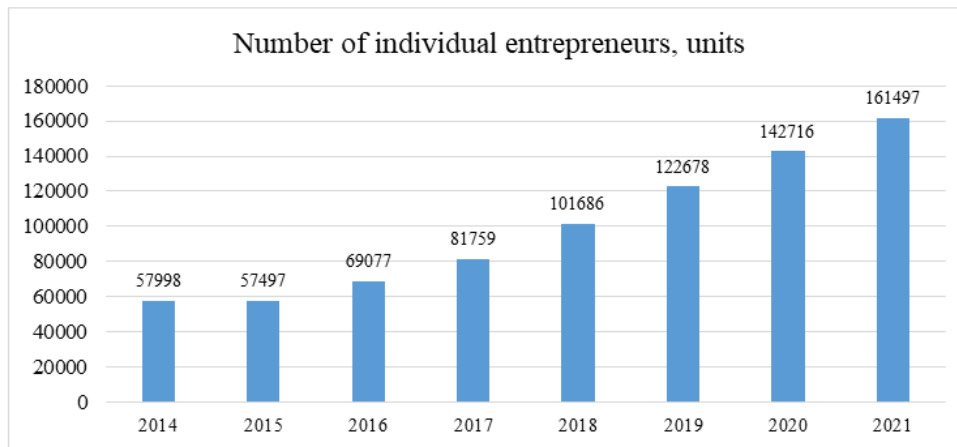
Fig. (2). The Number of Individual Registered Entrepreneurs in 2014-2021 in Ukraine.

Source: compiled by the author based on data from the State Statistics Service of Ukraine (2022).

Table 2. Dynamics of Growth of Individual Registered Entrepreneurs in Ukraine.

Year	2014	2015	2016	2017	2018	2019	2020	2021
Number of individual entrepreneurs, units	57998	57497	69077	81759	101686	122678	142716	161497
Growth dynamics, %		-1%	20%	18%	24%	21%	16%	13%

Source: compiled by the author based on data from the State Statistics Service of Ukraine (2022).

Ukraine – optimization of labor relations or use of benefits provided to VAT payers. The option of tax optimization is also widely used when employment contracts with the primary workers permanently and employment contracts with engaged individual entrepreneurs for the performance of only a specific part of the work or the performance of one contract are combined (Fig. **2**).

Based on Fig. (**2**), it can be asserted about the significant growth of active business entities of the individual entrepreneur, the dynamics for analysis are given in Table **2**.

So, despite the impact of the pandemic, since 2016, there has been a steady increase in the number of individual registered entrepreneurs. However, the COVID-19 pandemic since 2020 has had a negative impact on the growth of the number of individual entrepreneurs, which has led to a slowdown in the growth rate of the number of individual entrepreneurs in Ukraine. This situation with the number of registered sole proprietorships in the IT industry illustrates one of the options for optimizing taxation in this field, namely: sole proprietorships conclude an agreement directly with a customer who is a non-resident of Ukraine (mainly for the III tax group); the Ukrainian company acts as an intermediary between the individual entrepreneurs, on the one hand, and the international customer company. And this tax optimization scheme was most often used in the IT industry. In this context, a company that provides outstaffing services can also act as an intermediary, and labor relations are registered with the help of an employment contract. Against the background of the growth in the number of taxpayers of the single tax and revenues in the budget of tax payments, there is also an increase in the share of the IT industry in the GDP of Ukraine. The forecast was made according to three scenarios – realistic, pessimistic, and optimistic. These scenarios illustrate options for increasing the share of the IT industry in Ukraine's GDP (Table **3**).

Considering the results of the calculations, it can be concluded that all the forecast values under all scenarios have positive growth dynamics, which is illustrated in Figure 3.

The forecast is made for 3 years – 2022, 2023, and 2024. It is built taking into account the presence of a crisis due to the pandemic of COVID-19 and other exogenous and endogenous factors that have developed for the year 2021. However, it should be noted that the share of forecast values is determined for the GDP of Ukraine, which will have a constant value, which is the value of 2021 – 5459574 million UAH. This is one of the study's limitations because the model will not take into account the reduction or growth of GDP during the forecast period but will remain at the level of 2021. So, suppose IT companies continue to work under the conditions of the current taxation system according to the Tax Code of Ukraine (2010) until the adoption of a special taxation regime. In that case, it can be concluded that under any scenario, the fate of the IT industry will grow. In order to optimize and streamline taxation of the IT industry, the government will introduce a new taxation model starting in 2022 within the Diia.City (2022) project. This is a unique legal and tax space in an online format, which allows IT companies to register and cooperate with different countries of the world based on labor contracts according to the Labor Code of Ukraine (1971), GIG contracts, as well as concluding

Table 3. Forecast of the Growth of the Share of the IT Industry in GDP, UAH Million

Years	GDP created by the IT industry, million UAH	Realistic scenario, a million UAH	Pessimistic scenario, a million UAH	Optimistic scenario, a million UAH	The share of the IT industry in GDP, % (realistic scenario)	The percentage of the IT industry in GDP, % (pessimistic scenario)	The percentage of the IT industry in GDP, % (optimistic scenario)
2010	33011				3.06%		
2011	38390				2.95%		
2012	43379				3.09%		
2013	48372				3.30%		
2014	52724				3.32%		
2015	72596				3.65%		
2016	89268				3.74%		
2017	110296				3.70%		
2018	138828				3.90%		
2019	182667				4.59%		
2020	209394				4.96%		
2021	246021	246021	246021	246021	4.51%	4.51%	4.51%
2022		280014	261848	298180	5.13%	4.80%	5.46%
2023		314103	281369	346838	5.75%	5.15%	6.35%
2024		348192	295855	400530	6.38%	5.42%	7.34%

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2022).
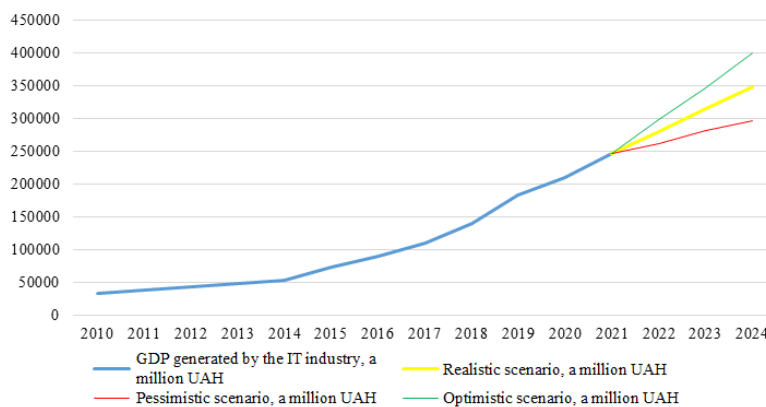

Fig. (3). Illustration of the Forecast of the Share of the IT Industry in Ukraine's GDP.

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2022).

contracts with individual entrepreneurs. The authors of the project note that in this way, the amount of taxes paid will be less than in other countries of the world (Table **4**).

As indicated in Table 4, residents of the Diia.City (2022) portal will pay a total of 16440 euros in taxes per year. This amount of taxation is achieved by the fact that IT companies that will become residents of the Diia.City portal will not pay income tax but only capital withdrawal tax (corporate tax), personal income tax, military levy, and a single social contribution. Lower tax rates also determine the lower total amount of taxation for the IT industry in Ukraine. Compared

to other countries, for example, the US retains an income tax but lacks capital withdrawal taxes and military levies. At the same time, Kazakhstan and Poland have generally simplified the tax burden for their IT industry, and taxation is carried out in only two ways – personal income tax and a single social contribution. Such a step of the Ukrainian government aimed to attract additional investments and develop the IT industry. To determine the expediency of introducing a new tax regime for IT companies, a forecast consisting of a realistic, pessimistic and optimistic scenario was constructed (Table **5**, Fig. **4**).

Table 4. Comparison of Taxation of the IT Industry in Ukraine (Diia.City) and in the World

	Income tax	Tax on withdrawn capital	Personal income tax	SSC	In total
Diia.City (Ukraine)	-	1800	7200	7440	16440
India	5500	-	7200	5760	18460
Kazakhstan (Astana Hub)	-	-	14400	9360	23760
USA (Delaware)	2175	-	4976	22032	29183
Georgia (virtual IT zone)	-	1000	28800	2800	32600
Poland	-	-	7200	30925	38125

Note: SSC – single social contribution.

Source: compiled by the author based on data from the Diia.City (2022) portal.

Table 5. Forecast of Attracting Investments in the IT Industry.

Years	Investments in the IT industry, a million UAH	Investment growth, %	Realistic scenario, a million UAH	Pessimistic scenario, a million UAH	Optimistic scenario, a million UAH
2010	8625.8	13%			
2011	9730.0	4%			
2012	10167.7	-3%			
2013	9864.0	-17%			
2014	8175.1	181%			
2015	22975.0	-32%			
2016	15651.2	18%			
2017	18395.2	62%			
2018	29884.9	-30%			
2019	21063.4	6%			
2020	22381.6	-10%			
2021	20128.1	13%	20128.1	20128.1	20128.1
2022			27025.4	18590.7	35460.2
2023			28556.6	20121.8	36991.4
2024			30087.7	21652.8	38522.5

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2022).

Fig. (**4**) illustrates the above calculations.

Given the forecast, it can be said that the volume of investments in the event of a pessimistic scenario will significantly decrease, and the fall, starting from 2021, will only partially return to the crisis period in 2024. Thus, comparing the results of the forecast of the share of the IT industry in GDP, as well as the volume of investments in the industry, it is possible to conclude about the need to streamline and optimize taxation for such a specific and dynamic industry as IT at the state level. This volume of involved investments is ensured by Law of Ukraine No. 1797-VIII "On Amendments to the Tax Code of Ukraine on Improving the Investment Climate in Ukraine" (2016), which provided for some changes in the process of taxation of individual entrepreneurs that were on the general taxation system and determined the transition of the IT industry to a special taxation regime. In order to determine the factors that influence such assessment results, a regression-correlation analysis was conducted, the results of which are shown in Table **6**.

According to the results of the conducted correlation-regression analysis, conclusions were drawn regarding the fact that the constructed model is significant by 97% (R-squared = 0.97). The most considerable influence on the share of the IT sector in GDP is the number of workers in the IT sector because the P-Value is 0.004, i.e., 0.4%. And it is the increase of this indicator by one unit (that is, in the case
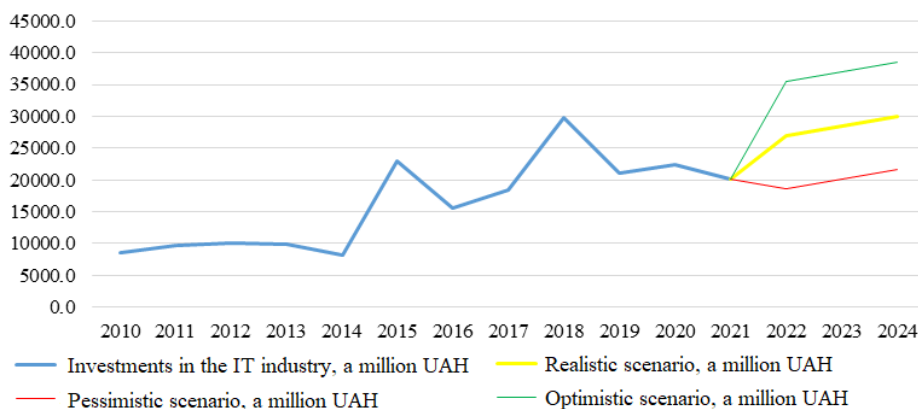
Fig. (4). Illustration of the Forecast of Investment Attraction in the IT Industry.

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2022).

Table 6. Results of Regression-Correlation Analysis.

Regression Statistics. Panel 1				
Multiple R	0.98535106			
R-squared	0.97091671			
Normalized R-squared	0.946680636			
Standard error	16859.58513			
Observation	12			
Regressions. Panel 2.	Coefficients	Standard error	t-statistics	P-Value
Constant	77096.84419	55314.77164	1.393784009	0.212817359
Investments in the IT industry, a million UAH	0.399637897	1.469662668	0.271924916	0.794794581
Graduates of IT specialties, individuals	-0.018838832	0.15182086	-0.124085927	0.90529989
The disease COVID-19	9.67291E-05	0.000105039	0.920885103	0.392631261
Inflation	-624.7132634	494.5970231	-1.26307526	0.253425146
The number of IT workers, thousands of people	729.859698	161.3409804	4.523709329	0.004001778

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2022).

of an increase in the number of workers by 1000 people) that will lead to an increase in the share of the IT industry in GDP by UAH 729.86 million. All other factors indirectly affect the growth or decline of the percentage of the IT industry in GDP. Therefore, the results of the study indicate the need to take into account the specifics of the IT industry in Ukraine and to develop a precise mechanism for regulating taxation specifically for industry workers since the increase in IT personnel has a significant impact on the growth of Ukraine's GDP, an increase in attracted investments and an increase in tax revenues. Such tax regulation should simplify the activities of the IT industry and make it competitively attractive both in medium-sized countries and in global markets, where competition among IT specialists is very intense and requires the presence of competitive advantages. Such advantages should be provided, including by the state, creating a favorable environment for the functioning of the IT industry.

4. DISCUSSION

The conducted research proves the necessity of introducing a special tax payment and accounting regime for the IT industry of Ukraine. Scientists such as N.M. Levchenko, O.M. Silenko, S.O. Artyukh (2018) also work in this direction. In their research, they justify the feasibility of introducing a particular fifth group of taxation to the IT industry. They suggest using non-homogeneous depreciation methods to account for intangible assets, fixed asset, and low-value non-current tangible assets, but depending on the group of assets, which will allow correct and efficient accounting in IT companies. Thus, scientists suggest using one of the following methods to account for intangible assets and fixed asset: straight-line, production, cumulative, residual value reduction, or accelerated residual value reduction. As for the depreciation of low-value non-current tangible assets, two options are offered: use the value of the entire asset and transfer 100% of its value to the value of the object; transfer 50% of

the value of the asset to the value of the object in the first month of use, and transfer the remaining 50% to the value of the object only in the month of use of the asset (Mishchenko and Mishchenko, 2015; Shalbolova et al., 2012). From the amortization side, scientists consider the optimization of taxation, while the conducted research directly analyzes direct income taxes, personal income, etc.

S.M. Tarasyuk (2022) analyzes the presence of restrictions and discriminatory factors in the new legal model for the IT industry in the case of registration by a resident of Diia.City. The author makes a detailed analysis of the Law of Ukraine "On stimulating the development of the digital economy in Ukraine" and concludes that this law does not contain any discriminatory criteria, on the one hand, and, on the other hand, does not give any advantages to any of the market participants IT. Every representative of the digital economy, subject to compliance with the criteria established by law, can acquire the status of a resident of the particular legal regime of Diia.City. Scientists A. Aslam and A. Shah (2021) emphasize that technological growth has completely changed the concept of "traditional business models" in recent years. According to L. Flach, M. Irlacher, F. Unger (2021), the digitalization of the economy began in 1980 and continues to this day. A. Currently, new business models have entered the market, based on providing the very environment where consumers and producers can interact at various levels: from regional or local to global. This influence of technology on business stimulates the formation of a special layer of companies, IT companies, which systematically accumulate pioneers' advantages, thus creating the need to create new modes of interaction with state control bodies (Bondarenko and Gorbenko, 2018; Kredina et al., 2022). In this context, introducing a special legal regime in Ukraine becomes the main issue for developing the IT industry.

Some scientists, in particular P.A. Barnes and H.D. Rosenbloom (2020), suggest that the solution to this issue may be introducing a unified taxation system for the IT industry. This initiative has not been worked out in detail, and it is unclear how it will be administered. In addition, according to the authors, the very concept of taxes on digital services is based on the misconception that the consumer's location necessarily indicates where the value is created. If a jurisdiction wants to regulate the taxation of sales revenue, it can use instruments such as a consumption tax, VAT, or retail sales tax, rather than imposing a new tax. R. Mason and L. Parada (2018) believe that the size of the threshold values of taxable income, defined in the unified taxation system, can be considered as hidden discrimination against international companies because, as a result of their application, international companies are taxed disproportionately compared to small local companies (Mason, 2020; Batrakov and Tarasov, 1999). Another option to consider in connection with direct taxes for revenue mobilization is creating a tax on digital transactions. Only some payments are made by residents of the country for goods supplied by foreigners. To avoid the potential problem of infant maintenance, these taxes could be introduced separately so that those taxed based on substantial presence are not again taxed based on permanent presence. The withholding tax approach is believed to be particularly beneficial for developing countries such as those in Africa. According to M. Ndajiwo (2020), this increases government

revenue collection, as it emphasizes their country's ownership of consumer markets.

The creation of a new tax policy instrument is carried out very quickly: from the very idea to its legislative implementation, only a few years can pass. As W. Cui (2019) noted, the scientific community and practicing lawyers initially treated the unified IT taxation system not as a serious concept but as a political proposal motivated by "exclusive protectionism, populism, and political opportunism". Of course, Ukraine is trying to achieve certain competitive advantages in order to become a full member of the global digital economy and occupy the largest possible segment of the digital market. That is why the government should consider potential difficulties. First, taxes should not hinder the development of the global digital economy. The digital economy provides Internet services that are economical and necessary for the daily functioning of individuals, companies, and even governments (Shalbolova et al., 2020; Cherunova et al., 2021). The digital platforms offered by the Internet are crucial for developing country enterprises to compete favorably in the international market in terms of greater access to consumers, supply chains, and lower trade costs (DigITal economy report…, 2019). Tax proposals that could increase Internet costs should be avoided because they will directly hinder economic growth. Second, according to S. Rukundo (2020), taxes should not unduly burden local digital multinationals and medium or small IT businesses.

However, this study does not take as its starting point that governments often need to raise taxes and that this is very unpopular, in contrast to studies by E.C. Mayer-Serra (2014), T. Besley and T. Persson (2014), T.V. Ponomaryova and O.P. Melnikova (2019). Many Latin American countries, for example, have lower tax rates than expected, given their income levels, and there is a growing recognition that a higher tax burden is needed for development. Given that many developing countries' borrowing capacity is limited, the conclusions presented here regarding the influence of tax design features on state support for taxation should contribute to expanding the political toolkit aimed at strengthening the fiscal sphere of the state in developing countries. The development of the digital economy has challenged traditional tax systems. International taxation rules have proven to be inadequate for dealing with cross-border transactions, as multinational enterprises exploit the shortcomings of the existing global taxation system. There is also uncertainty about how to apply VAT to imported digital services. Given the fact that local companies are visible and their taxation is not tricky, they are taxed by the government. The problem lies in the taxation of international companies, as they are not residents of Ukraine and may not be taxed. By raising the thresholds at which the tax kicks in, the government would ensure revenue is collected from international companies, which typically cost more and the survival of much smaller local companies.

5. CONCLUSIONS

This study analyzes the main approaches to optimizing accounting and taxation in the IT industry. The main ways of interaction between employers and specialists in the field of IT, which is carried out through the conclusion of contracts

between IT companies and IT specialists, which are registered as private enterprises, have been determined. This type of cooperation is the most widespread in Ukraine. This study proves this since 2016, the number of individual registered entrepreneurs has increased by 20% compared to 2017. However, the COVID-19 pandemic led to an economic crisis, and the growth rate of the number of individual registered entrepreneurs slowed down, and in 2021 their number increased by 13% compared to 2020. Despite this, it can be stated that the share of the IT industry in GDP is growing. This is illustrated by a forecast based on three realistic, pessimistic, and optimistic scenarios. At the same time, in the case of a pessimistic scenario for attracting investments in the IT sector, it may lead to their reduction.

That is why the state proposed a special legal regime for Diia.City. This legal regime is proposed to be introduced in 2022 for the growth of the IT market in Ukraine and the attraction of more investments in IT through more transparent mechanisms of interaction with state regulatory bodies. The correlation-regression analysis confirms this conclusion since the most influential factor in the growth of the IT market in Ukraine is the number of employees in this field. The calculation showed that with an increase in the number of IT specialists by 1 person, the market grows by UAH 729000 for a year. Currently, the IT sector occupies a powerful position in the economy of Ukraine, which is why taking into account the problems of the study, it is necessary to create comfortable conditions for the cooperation of the IT industry and state regulatory bodies so that achieving an increase in the number of people in the field of information technology will directly affect the increase in funds in budgets That is, the creation of such a regime of taxation of the IT industry in which the filling of budgets will depend on the number of people involved in the field of this industry, and not on the increase in the tax burden on them.

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