

# METHODICAL APPROACHES TO ASSESSING THE IMPACT OF THE TAX BURDEN ON THE ECONOMIC GROWTH OF AR AB COUNTRIES

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## ABSTRACT

*The transformation of the world financial market under the influence of global imbalances necessitates strengthening measures to strengthen the economic growth of countries. The article substantiates that the main component of financial development is the system of taxes and fees with the help of which the strategic functions of any state are provided. Scientific approaches and theoretical aspects to the formation of the taxation system are structured. Scientific and methodological aspects of the formation of the taxation system in modern conditions have been developed, which, in contrast to the existing ones, are based on the basic principles, types and forms of taxes and fees, taking into account the peculiarities of the national economy and the specifics of its functioning.*

*The periodization of the main stages of the convergence of tax systems in the world has been developed, which is substantiated and based on the historical approach of the development of taxes as an economic category and religious views. On the basis of the proposed periodization of the main stages of convergence of tax systems in the world, the diversity of the functioning of the taxation systems of the countries of the world is highlighted, which necessitated their clustering into homogeneous groups according to the levels of tax burden. To classify the countries of the world by the level of tax burden, a multidimensional cluster analysis of the level of tax burden was carried out, which made it possible to determine that the most attractive for investors are taxes in Arab countries, which form an acceptable climate for ensuring economic growth. To assess the impact of the tax burden on the economic growth of the United Arab Emirates, a correlation-regression analysis was carried out. The obtained results of the study, in contrast to the existing ones, made it possible to determine the significant role of taxes in the formation of strategic indicators of economic development and the volume of GDP.*

*The practical significance of the research results lies in the fact that the developed scientific and methodological approaches to the formation of the taxation system in modern conditions can be applied in practice in the formation of the financial strategy of the state, and the developed aspects of multidimensional cluster analysis will determine the key factors of the tax burden in each country. Interpretation of the correlation-regression analysis of the impact of the tax burden on economic growth will make it possible to determine the main measures to resolve the dependence of taxes and the volume of the country's GDP.*

**Keywords:** Tax, Tax Burden, Taxation System, Regulation, Economic Growth.

## INTRODUCTION

The global internationalization of the economy and the global financial crisis led to the transformation of existing approaches to the organization and construction of the tax systems of countries, as an internal financial policy, and to consider it on a large scale outside a particular country. The key argument for such a transformation is the conceptual need to simplify the existing tax systems. This simplification is considered from the standpoint of optimizing the structure of expenses of business entities, by significantly reducing the existing rates and fees, which will accelerate the economic growth of the world economy. The last decade has seen a trend towards large-scale reforms of tax systems in different countries, which are aimed at reducing the tax burden on business structures by optimizing them and revising approaches to their calculation and calculation. These trends in tax reforms are aimed at stimulating the economic growth of countries and creating favorable conditions for the infusion of new investments and the introduction of innovations in business. It should be noted that in modern conditions of global macroeconomic changes and the volatility of world markets, economic development of individual industries, countries and the world economy as a whole is slowing down, which necessitates a revision of existing taxation indicators in order to optimize them and strengthen measures to ensure economic growth.

The development of tax systems in different countries of the world is established by their own rules of conduct, as a separate community of people that have accumulated historically and passed on to generations. Partially, these approaches, principles and rules were historically borrowed by different people, societies, and sometimes by individual states, which made it possible to transform these rules, approaches and principles into some separate formed tax systems in each country, taking into account its national characteristics such as politics, social stratum of the population, economic development and many other factors. However, the main primary source of the creation of the tax system at the level of a particular country was the creation of the state, which developed separate rules of conduct through certain systems of authorities, which regulated the main features of the created fees and taxes. In view of the fact that each state interacted, there were developed international norms of behavior and rules that were aimed at regulating these relations.

Depending on the role of each type of source of these rules in the modern world, the main legal systems have developed, which are closely interconnected. Taxes in one form or another have existed since ancient times; therefore, in all countries they are perceived as an integral aspect of human civilization. The original purpose of taxes was aimed at ensuring the conduct of wars and the development of the state, and now each state performs a wide range of strategically important and diverse functions, which are mainly aimed at ensuring sustainable socio-economic development, and also provides financing for a huge pool of economic sectors.

Conceptually, the modern trend is characterized by a high role of the state in the economy; this is confirmed by an increase in the share of tax collections and reformatting of legislation in order to strengthen the regulation of the financial system. An increase in the volume of national production in each country is accompanied by an increase in the tax burden, which is not an accidental phenomenon and has its own meaning. This relationship is justified by the fact that if individuals' income level increases, then it is subjectively easier for them to allocate funds for public needs in the form of fees and taxes. Consequently, the progressive evolution of society, economic development and taxes are continuous related concepts. However, in the world, the phased development and improvement of material production and the modification of commodity-money relations also determined the transformation of existing fees and forms of taxes.

It should be noted that the formation of tax systems depends on the economic system of the strategy of a particular country. An important factor in the development of taxes in the world is that taxes are considered not only as the main source of financing for the state, but also as a factor influencing the income of citizens. For any economic system, especially for a market one, there are characteristic crises, which are accompanied by a decline in economic development and its ups. For each of the described economic cycles, the state should take appropriate measures that can be aimed at both reducing the tax burden on business entities during the crisis, and increasing its share during the period of economic growth. Considering the main theoretical aspects of the development of taxes in the world, it should be noted that there are a large number of scientific works that are devoted to the study of this issue. Special attention should be paid to scientific works (Keynes, 2002), who emphasized that the state budget is also characterized by a deficit, which can be a stimulus for the development of the economy. He emphasized that in times of crisis, a tough fiscal policy should be pursued, which deals with the regulation of the budget deficit with the help of taxes. This approach is fundamental in the taxation industry, but it cannot be applied in the current conditions of volatility in world markets. Particularly noteworthy is the approach (Tanzi, 2000), which was the first to develop the concept of multipliers, according to which, at any stage of economic development; the state should direct a certain part of its funds to primary employment. This approach is explained by the fact that such actions ensure the purchasing power of the population, production growth, accumulation of funds and gradual economic growth. It should be noted that this approach and concept are also applicable in modern conditions in countries with underdeveloped economies. An interesting approach to the study of the tax burden on economic growth is considered (Ricardo, 1935), who considered the creation of a new type of tax as a new burden for production, which causes an increase in the natural price of goods. At the same time, part of the labor of the country that the taxpayer has at his disposal, with the help of the tax system, falls into the hands of the state and therefore can no longer be used productively. This part can take on such proportions that the surplus product necessary to encourage those who by their savings increase the capital of the state completely disappears. It is argued that in no free country has taxation ever reached such an extent as to reduce its capital from year to year. This approach is fundamental in the economic literature, as it is based on the basic economic laws, but does not take into account the modern features and specifics of economic regulation in the context of financial globalization and uncertainty, which requires a more detailed study.

A significant contribution to the development of the theory of taxation was made by a scientist (Marshall, 1983), who in his scientific research argued mathematically and proved that any type of tax exerts significant pressure on any factors of production, thereby restraining it, which causes a significant shift tax burden on consumers. This theory proves the fact that taxation of the process of consumption of any goods puts pressure on their producers, while reducing economic growth, both in an individual industry and in the country as a whole. This approach is fundamental in this industry, which, using mathematical methods, determined the negative impact of tax increases on production volumes. It should be stated that this approach does not take into account modern trends in the development of taxation systems and the existing economic situation in a number of countries in the context of global macroeconomic imbalances and uncertainty, which requires a more detailed study and determination of their impact on the economic growth of Arab countries (Izadkhasti, 2019).

A more global approach to the study of the impact of the tax burden on the economy is highlighted (Samuelson, 2000), which describes a macroeconomic model of the expenditure multiplier, while demonstrating how additional government spending can lead to a multiplier increase in gross domestic product (GDP). This model assumes that the cost of

additional government procurement can be provided by additional sources of taxation. At the same time, the argument of the effect of taxes on the economy is less significant than the stimulating effect of spending on economic growth, so that the total effect of the additional tax burden and costs turns out to be positive in terms of economic growth. However, it should be noted that this approach corresponds to modern realities, in particular the structure of the tax system in some countries of the world, but it is not global to use and does not take into account the need to optimize the tax burden on the economy in order to ensure economic growth.

The study (Laffer, 2010) deserves special attention, which considered the need to constantly reduce the level of the tax burden. At the same time, the main argument of this concept was that this reduction in the tax burden would increase the demand for goods and services, which in turn would increase their supply on the market. This approach made it possible to determine the relationship between the total amount of tax payments that are received and the maximum tax rate. The optimal rate for all types of tax payments was determined at the level of 33.00%. However, in modern conditions, this concept is applicable in individual countries, taking into account national characteristics, but cannot be applied globally. It should be noted that, based on the above, for many years, all studies, concepts and theories were aimed at studying the features of tax systems in different countries and at finding optimal options for reducing the tax burden in order to ensure economic growth.

## MATERIALS AND METHODS

To determine the modern transformations of the financial market under the influence of global imbalances, a system analysis is applied with the help of which the main existing measures to strengthen the processes to strengthen the economic growth of countries are highlighted. Theoretical generalization made it possible to substantiate that the main component of financial development is the system of taxes and fees with the help of which the strategic functions of any state are provided.

Structural and logical analysis made it possible to develop scientific approaches and theoretical aspects to the formation of the taxation system, which, in contrast to the existing ones, are based on the basic principles, types and forms of taxes and fees, taking into account the peculiarities of the national economy and the specifics of its functioning. A retrospective analysis of the peculiarities of the development of the economies of the countries of the world made it possible to form a periodization of the main stages of the convergence of tax systems in the world.

### **Methodological Approaches to Classifying the Level of Tax Burden in the Countries of the World Using Cluster Analysis Tools**

To determine the main features of the tax burden and its impact on the economic growth of countries, it is advisable to consider modern trends in the functioning of tax systems in the world with their segmentation by the level of the tax burden into appropriate clusters. For this study, a method of multidimensional statistical ordering of objects (countries of the world) into relatively homogeneous groups - clusters according to the level of tax burden was chosen. Basically, the task of clustering is related to statistical processing.

The use of the main elements of cluster analysis involves the implementation of the main tasks: 1) development of a typology and classification of countries by the level of tax burden; 2) exploration of useful conceptual schemes for grouping these countries into clusters; 3) generating hypotheses based on data research; 4) hypothesis testing or research to determine whether the types (groups) identified in one way or another are present in the available data (Miller, 2017).

To conduct a cluster analysis of the tax burden in the countries of the world, the K-means method was selected, with the help of which it is possible to assess the tax burden of the countries of the world, taking into account the level of economic development. The K-means method is part of multivariate statistics and is used if data analysis involves the processing of a large volume of interrelated features (Comans, 2017). To assess the impact of the tax burden on the economic growth of Arab countries, a multivariate linear regression equation should be applied, which is determined by the formula:

$$Y = C + at + E_{it} \quad (1)$$

$Y$  - the key dependent indicator of economic growth (GDP of the country, billion US dollars);  $C$  is the free term of the regression equation;  $a_t$  - independent indicators of the tax burden of the United Arab Emirates, in%;  $E_{it}$  - a random error, the distribution of which depends on independent variables.

To determine the identity in the clustering of countries, according to the level of tax burden in the world, the Euclidean formula was used:

$$d_{ij} = \sqrt{\sum_{k=1}^m (x_{ik} - x_{jk})^2}, \quad (2)$$

$d_{ij}$  - distance between objects  $i$  and  $j$ ;  $x_{ik}$  - the value of the  $k$ -th variable for the  $i$ -th object;;  $x_{jk}$  - the value of the  $k$ -th variable for the  $j$ -th object;

Intracluster variances for determining the level of the tax burden are calculated by the formula:

$$D = \frac{\sqrt{\sum_{k=1}^m (x_{ik} - x_{jk})^2}}{n} \quad (3)$$

$D$  - intra-cluster variances between objects  $i$  and  $j$ ;  $x_{ik}$  - the value of the  $k$ -th variable for the  $i$ -th object;  $x_{jk}$  - the value of the  $k$ -th variable for the  $j$ -th object;  $n$  - the corresponding number of observations.

The coefficient of determination characterizes the extent to which the variation of the dependent indicator is determined by the variation of independent variables in this case by the indicators of the tax burden. The coefficient of determination in multiple regressions is as follows:

$$R^2 = \frac{\sum_{i=1}^n (y - \bar{y})^2}{\sum_{i=1}^n (y_i - \bar{y})^2} \quad (4)$$

$y$  - theoretical values of the indicator of economic development of the United Arab Emirates-- the volume of GDP, billion dollars. USA;  $y_i$  - is the total average of the actual data of the dependent variable;  $y_i$  - actual individual values of the dependent variable.

Justification of the significance of the relationship between the main factor indicators is determined by the F-criterion of Fisher's significance, which is calculated by the formula:

$$F = \frac{\sum_{i=1}^n (y - \bar{y})^2}{1} \quad (5)$$

$l, (n-2)$  - the number of degrees of freedom according to the numerator and denominator of the relationship.

Also, the accuracy of such models is calculated by the Student's criterion:

$$t = \frac{R\sqrt{n-m_1}}{\sqrt{1-R^2}} \quad (6)$$

$R^2$  – the coefficient of determination of the model;  $R$  – is the correlation coefficient;  $(n - m_1)$  is the number of degrees of freedom.

The globalization of the world economy is characterized by the expansion of relationships between states and at the level of tax systems with a gradual convergence and the development of basic principles, methods and indicators of taxation (Al-Ababneh et al., 2020).

The convergence of tax systems in the modern conditions of global transformations under the influence of financial globalization should be considered in the periodization of the main stages, which are presented in Table 1.

<b>Specificity of economic development and characteristics convergence of tax systems</b>	<b>Time period</b>	<b>Stage</b>
<i>The emergence of globalization of world markets and transnationalization of the activities of economic sectors.</i>	(1891-1913)	I
Interaction and cooperation of countries in terms of simplification of taxation of income and property. Conclusion of the first international tax agreements.		
<i>Intensive economic development. The beginning of the Cold War between West and East.</i>	(1919-1939)	II
Preparation of the first model tax conventions. Development of international tax cooperation between the countries of the world.		
<i>Development of transnational business and intensive growth of labor migration of the population.</i>	(1940-1990)	III
Creation of OECD and UN Model Tax Conventions. Start of the European Tax Harmonization Process.		
<i>Intensive development of the world financial system and information technology</i>	(1990-2004)	IV
The beginning of the harmonization of direct EU taxes. Cooperation of countries on standardization of rates and criteria of taxation.		
<i>World financial crisis and global macroeconomic imbalances</i>	(2005-2010)	V
These processes have significantly influenced the taxation systems of individual countries. Close interaction of states to strengthen cooperation in the framework of tax harmonization.		
<i>Post-crisis development of the world economy with global economic cycles</i>	(2011-today)	VI
Building optimal relations between countries in the field of reducing economic pressure and tax burden from the state.		

In order to structure and determine the level of tax burden in the countries of the world, methods of cluster analysis were used using the analysis package. The main results of the cluster analysis of the distribution of countries by the level of tax burden as of 01.01.2020 are presented in Table 2.

Average value of the tax burden,%	Maximum value of the tax burden,%	Minimum value of the tax burden,%	Level of tax burden	Cluster
1,50%	9,00%	0,00%	Low level	I
17,00%	25,00%	9,00%	Normal level	II
30,69%	34,00%	25,00%	High level	III
37,86%	44,30%	35,00%	Overestimated level	VI
51,47%	60,00%	45,00%	Critical level	V

## RESULTS AND DISCUSSION

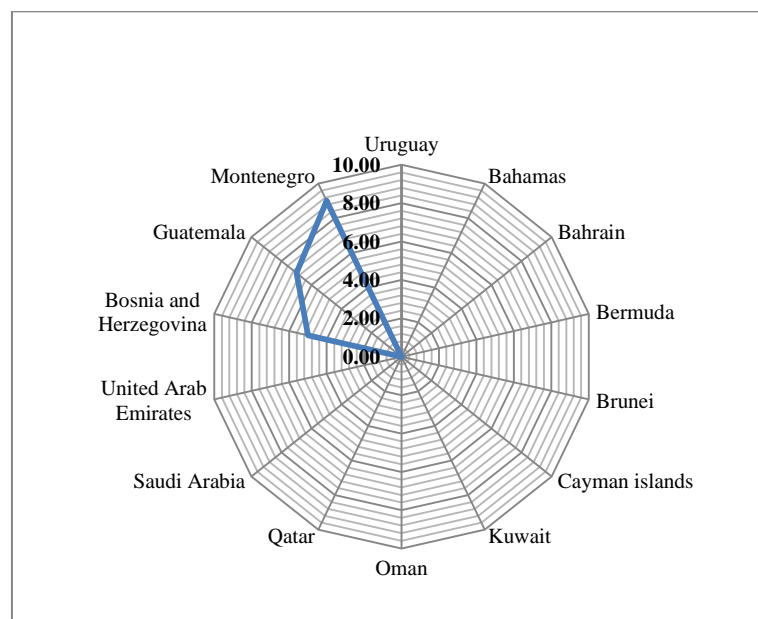
The main results of the cluster analysis of the tax burden of the countries of the world indicate that the quantitative redistribution of countries by the level of the tax burden occurs almost every year within the cluster, sometimes drastically going beyond its limits. The countries that fall into the 1-2 clusters have more acceptable conditions for doing business in terms of the tax burden and are leaders in terms of low taxation levels. The leaders in these clusters are the Arab countries. As for the 3-4 clusters, the countries that belong to this cluster are characterized by a tighter monetary policy and regulation, which in turn generates high tax levels that hinder the economic development of countries in the general arena of the world market. The highest levels of tax burden - cluster 5 are observed in some countries of the Eurozone and the European Union, which are at the stage of constant modernization and revision of taxation.

Considering the main results of clustering countries by the level of tax burden, it should be stated that most countries are in 3-4 clusters. These clusters are characterized by a high level of tax burden, which has a negative impact on the economic development of these countries. Since doing business in these countries is very financially difficult and difficult, many come to the use of offshore zones, which are mainly located in the Arab countries, where the level of tax burden is minimal and corresponds to a low level. The variance of the clusters of countries by the level of tax burden and the total within the cluster variance are presented in the Table 3.

Cluster variance	Number of countries in the cluster	Level of tax burden	Cluster
0,095	14/157	Low level	I
0,128	60/157	Normal level	II
0,032	29/157	High level	III
0,079	40/157	Overestimated level	VI
0,308	14/157	Critical level	V
0,645	<b>Total cluster variance</b>		

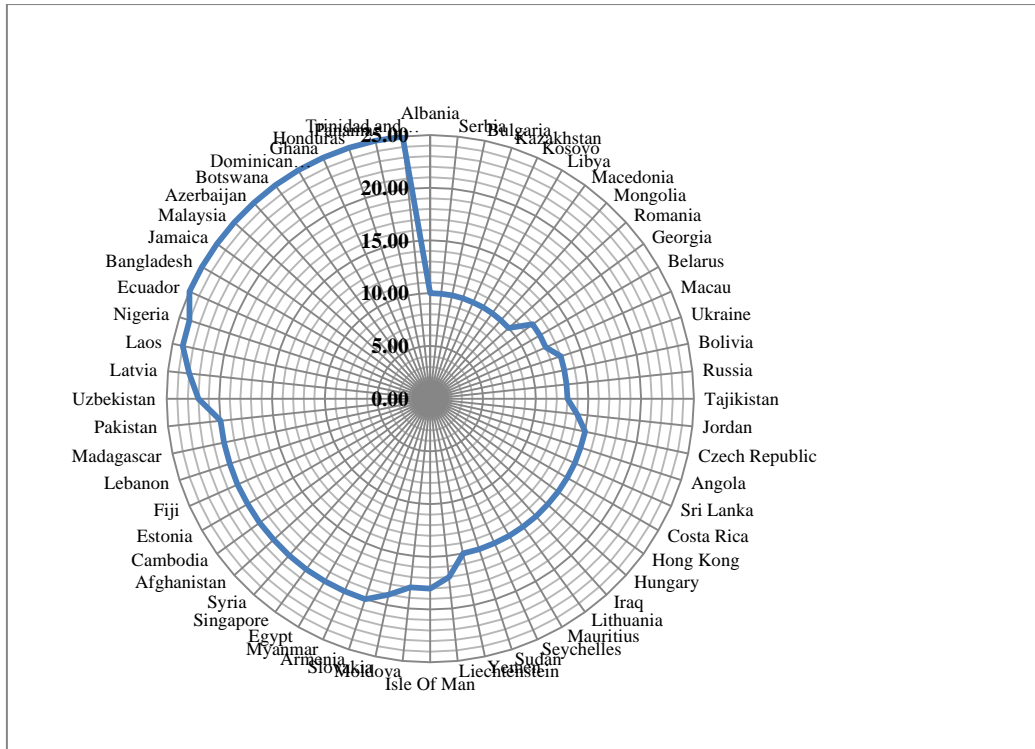
Taxes are a gratuitous payment that is collected from organizations and individuals in the form of alienation of their property rights in order to ensure financing of the state's activities (Cung, 2020). Based on the results of the cluster analysis of countries by the level of tax burden, it is worth noting that the level of the tax burden in each country is quite different and individual, but the general concept is similar to each other. Tax systems in the world should be classified into 5 main categories: from low to critical level of tax burden.

The level of the tax burden has a very significant impact on the economic growth and development of any country. It is important to state the fact that the results of the cluster analysis made it possible to identify countries with an insignificant level of taxation, which are characterized by stable economic growth and a pre-existing investment climate. The results of the cluster analysis showed that in cluster No. 1 there were mainly Arab countries, which should be stopped for a more detailed study and analysis of the impact of the tax burden on economic growth. Consequently, there are only a few countries in the world that do not pay taxes on income at all, such as the United Arab Emirates, Saudi Arabia, Qatar, Kuwait, Bahamas and Bermuda, Monaco and others. To develop methodological approaches to assessing the impact of the tax burden on the economic growth of Arab countries, the UAE tax system should be considered (Warner R., 2019). The uniqueness of the taxation of the United Arab Emirates attracts a huge amount of foreign investment. However, it should be noted that Muslim law, which is the main legislative base of the UAE, does not recognize most of the generally accepted types of taxes. The complexity of the perception of the tax clan in the country associated with the internal regulation of tax obligations in each individual emirate. In addition, there is a taxation procedure for each free economic zone. In the UAE legislation, there is no single document containing the basic principles and methods of taxation in the country. The main sources of tax law are individual regulations of each Emirate, as well as acts of administrations. The distribution of countries by the level of tax burden in clusters is shown in Figures 1-5.

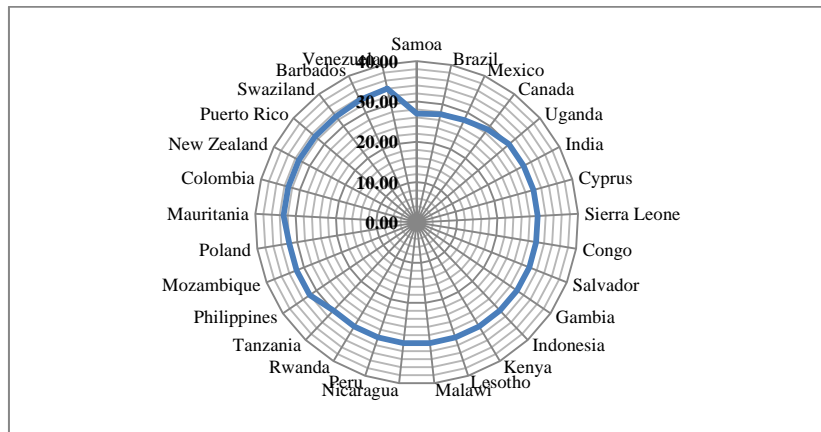


**Figure 1**  
**COUNTRIES WITH A LOW TAX BURDEN**

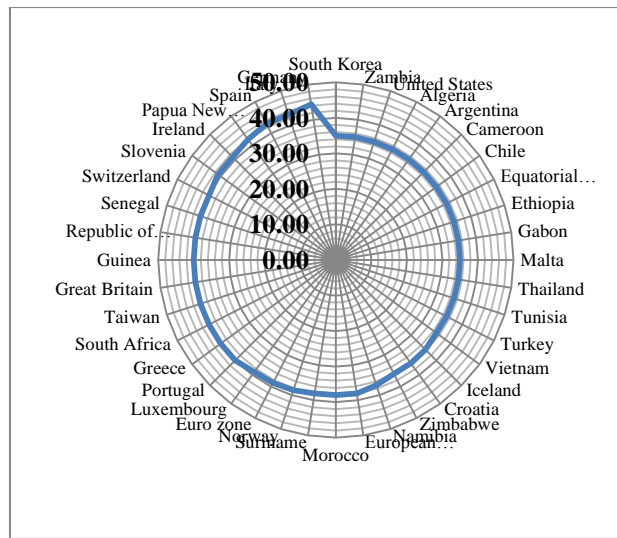




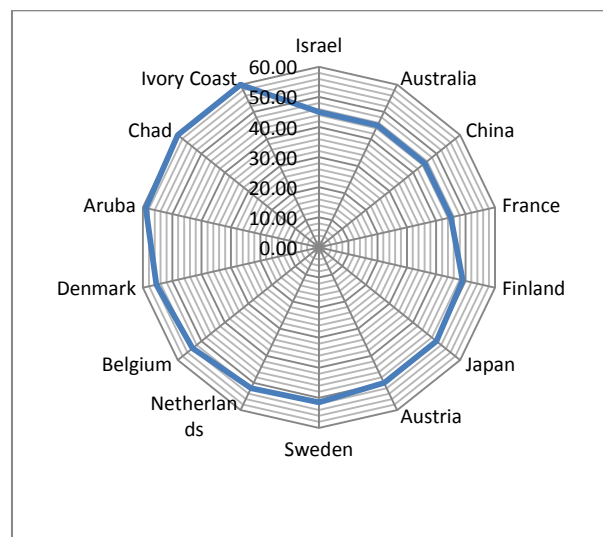
**Figure 2**  
**COUNTRIES WITH NORMAL TAX BURDEN**



**Figure 3**  
**COUNTRIES WITH A HIGH TAX BURDEN**



**Figure 4**  
**COUNTRIES WITH AN OVERSTATED TAX BURDEN**



**Figure 5**  
**COUNTRIES WITH A CRITICAL LEVEL OF TAX BURDEN**

**Figures 1-5**  
**DISTRIBUTION OF COUNTRIES OF THE WORLD BY THE LEVEL OF TAX BURDEN IN CLUSTERS AS OF 01.01.2020**

Source: Developed by the author on the basis Al-Ababneh et al. (2021).

The main results of the correlation-regression analysis and assessment of the impact of the tax burden on the level of economic growth in Arab countries are presented in the Table 4.

<b>Table 4</b>		
<b>MAIN RESULTS OF THE CORRELATION-REGRESSION ANALYSIS OF THE ASSESSMENT OF THE IMPACT OF THE LEVEL OF TAX BURDEN ON ECONOMIC GROWTH OF THE UNITED ARAB EMIRATES</b>		
<i>Dependent variable - GDP volumes, billion US dollars</i>		<i>Independent variables</i>
<i>P-values</i>	<i>Coefficient</i>	
0,353	0,005	Sales tax
0,315	0,394	Social insurance rate
0,175	-0,217	Social Security Rate for Companies
0,007	-0,161	Employee social insurance rate
	0,85	Determination coefficient (R <sup>2</sup> )
	0,004	Significance according to Fisher's criterion (F)
	1,59	Significance of t - Student's t test

Based on the presented results of the correlation-regression analysis of the assessment of the impact of the tax burden on the economic growth of the United Arab Emirates, it should be noted that the obtained economic and mathematical model is significant, which is evidenced by the coefficient of determination of 0.85. The parameters of the obtained correlation-regression model were tested for significance using Fisher's F-test and Student's t test. It should be noted that according to the results of the obtained model for assessing the impact of the tax burden on the economic growth of the United Arab Emirates, the tabular value of the Student's t criterion is 1.59 since calculated = 2.54, which makes it possible to state the fact that the obtained model is accurate and adequate as table <math>t\_{cal}</math>.

This fact is explained by the fact that most of the companies that are established in offshore zones evade the official payment of taxes in their countries, and a slight change in tax rates in the United Arab Emirates is reflected in the volume of economic growth - GDP. A very important aspect of the organization of the taxation system of the United Arab Emirates is that almost every company is exempt from taxes for the first 15 years with the possibility of extension, which is the main reason for such a demand among foreign investors.

## CONCLUSION

It is important to note that the considered specificity of taxation in the world has a rather different approach and principles of taxation, but all directions for the financial support of the function of the state. The main most specific in their structure of taxation systems in the world are the Arab countries, systems that are built mainly on religious postulates and basic principles of obligation. The developed basic scientific and methodological aspects of the formation of taxation systems in the world in modern conditions can be applied in practice in the formation of the financial strategy of the state. The necessity of clustering tax systems in the countries of the world has been substantiated; the main results of cluster analysis can be applied both at the level of an individual company and at the state level when developing a business plan and strategy for economic activity. The need to assess the impact of the level of tax burden on the economic growth of the United Arab Emirates is highlighted by the use of correlation-regression analysis, the application of which in practice will allow identifying the main types of taxes and fees that have a significant impact on the country's GDP indicators. This approach, in contrast to the existing ones, will allow in the future assessing the impact of the tax burden in the context of types and types of mandatory fees and taxes on economic growth. The tax burden and its impact on the economic growth of countries is quite relevant in the modern conditions of the transformation of the world

financial market and requires constant study and modernization of existing approaches, principles and methods.

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