

Lyudmyla Marchenko*S.I. Yuriy Department of Finance,**West Ukrainian National University, Ternopil, Ukraine (corresponding author)**E-mail: marchenko_liv@ukr.net**ORCID: <https://orcid.org/0000-0002-5937-4467>*

The impact of fiscal policy on ensuring the development of the social sphere in Ukraine

Abstract

Introduction. Social support of the population is the activation of social and economic activity, the guarantee of economic well-being and development in the state. The necessity of studying modern trends in the functioning and possibilities of improvement of the state financial policy lies in the urgent need to ensure the stable development of a socially oriented market economy in Ukraine. In order to build an effective system of social protection, provision and support, it is necessary to have a sufficient amount of financial resources, which will ensure the effective functioning of the social sphere. *The purpose of the article.* To determine the relevant aspects of the impact of fiscal policy instruments on ensuring the development of the social sphere, taking into account the trends of digitalization and the use of mathematical methods of analysis. *Methodology.* The research used general scientific and special methods: theories of cognition, synthesis, grouping, description, comparison, mathematical analysis, graphic representation, theoretical generalization and systematization. *Results.* The nature and role of tax policy in ensuring the social development of the state are substantiated. The peculiarities of the digitalization of the tax administration as a factor of improvement of the activity of the tax authorities in the context of the performance of fiscal and social functions are emphasized. During the reporting period, considerable attention was paid to the peculiarities of financing the social sphere. It was noted that tax revenues play a key role in the financial resources of local budgets, which makes it possible to cover a wider range of expenditures in the social sphere. Using the methods of mathematical analysis and software products, a graph of the correlation between the revenues of local budgets and expenditures and the social sphere was created. It was found that tax revenues have the greatest impact on the volume of spending on housing and communal services, mental and physical development, and education. In the case of health care expenditures, the same influence of both tax revenues and official transfers was found. Measures to optimize the fiscal policy of Ukraine in the context of stabilizing the social environment in the conditions of martial law are proposed. *Conclusion.* Fiscal policy should provide a system of state measures to solve certain short-term and long-term tasks facing society, in particular with the help of the tax system. Long-term tasks include achieving economic growth, the maximum level of employment of the country's population and increasing the level of its well-being. Short-term goals can be filling the state and municipal budgets, achieving their balance, stimulating investment and innovation programs that will contribute to the effective development of society.

Keywords

fiscal policy, financial resources, tax system, budget, digitalization, social sphere, social protection of the population

JEL: O23, H21, H53



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1 Introduction

At present, society is systematically confronted with a number of challenges and risks that prevent the normal satisfaction of life needs. The economic and social development of Ukraine over the past decade has been under the influence of a number of destabilizing factors, especially of a military-political

and pandemic nature. A stabilizing lever in this area can be fiscal policy, the optimization and adjustment of which will contribute to the accumulation of financial flows to ensure the priority budgetary tasks of the social sphere. In the conditions of martial law and post-war reconstruction of Ukraine, measures to rationalize fiscal policy play an important role in the context of finding resources

for the proper functioning of the social sphere, in particular, ensuring the livelihood of people directly affected by military aggression.

The state should create an optimal fiscal space, influence the relevant processes in society and create the best conditions for its effective development by using effective instruments of fiscal regulation and by efficiently organizing the activities of tax authorities.

Currently, the problem of finding optimal ways of implementing fiscal policy in the context of stimulating socio-economic processes is becoming acute. According to the author, the use of digital technologies and mathematical models in the organizational aspects of fiscal regulation will contribute to effective procedures for planning and redistribution of budgetary resources in the context of social security.

2 The role of digitization in the fiscal space of society

Fiscal policy in Ukrainian realities is under the influence of a number of factors of discriminatory nature, which are composed due to the cumbersome, complexity, instability and ambiguity of certain norms of the budget and tax legislation; insufficient level (not quite adequate to the norms of developed countries of the world) of coordination of individual legislative acts; Imbalance of rights and obligations of subjects of tax relations; disregard of needs and operating conditions of enterprises; insufficient use by state and local bodies of the regulatory and (or) stimulating functions of taxes; uneven distribution of the tax burden on tax subjects (Klepanchuk, 2014); low level of tax culture, awareness and literacy of tax-paying citizens; relatively low level of modernization of technical and technological support of tax administration processes; discrimination of the social component of redistributive mechanisms of taxation, etc. (Tkachyk, 2021), however, one can see the introduction of martial law, scarcity of financial and energy resources, and a number of social and environmental risks as the main and highly influential.

At the same time, it should be emphasized that the imperfection of fiscal policy creates barriers on the way to revitalization of investment and innovation activities in territorial communities and the state, including due to the negative impact on the activities of small (medium) business entities and households. Such an environment strengthens the weaknesses of taxpayers, and the existence of unfavorable conditions caused by the action of destabilizing factors of fiscal policy is often one of the main causes of financial crises and bankruptcy of enterprises, which does not contribute to effective social transformations.

According to the authors, the digitalization of the fiscal space requires a comprehensive approach, which will be systematic and embodied in innovative solutions for the implementation of necessary and priority information systems in the procedures and algorithms of tax administration. Scientific studies on the nature of fiscal space have been actively carried out by Professor P. Heller of Harvard University (Heller, 2005), who defined it as additional opportunities for the state (municipal) budget to have resource support for financing necessary public needs, provided that the stability of the financial position or the stability of the economy is maintained.

The subjects of the fiscal space are the participants of the fiscal policy, between whom financial and economic relations arise. Since digitization in the narrow sense is the process of digitization of information, the digitization of the fiscal space includes the digitization of information related to the formation and use of the fiscal potential of the state. Therefore, the most important entities that ensure the digitization of the fiscal space are the state, represented by its bodies of various branches of government, taxpayers and consumers of public goods.

In the process of conducting fiscal policy with the help of its instruments (taxes, public debt, expenditures and public procurement, interbudgetary transfers), the state uses digital technologies for digitizing fiscal information, which is used by both taxpayers and public consumers (Zhigalkevich, Zalutskyi, 2020). The latter are involved in the process of conducting fiscal policy and digitizing the fiscal space as entities that expect returns from paid taxes and evaluate and conduct public control over the state's activities in the field of fiscal tasks.

Therefore, there should be a feedback between the state and the consumers of public goods. Similarly, taxpayers, whose main task is to pay taxes to the budget on time and in full, send information to the controlling authorities about the amounts of payments accrued and paid, and receive feedback in the form of confirmation of the fulfillment of tax obligations or control measures or debt collection.

The digitalization of the participation of the consumers of public goods in the process of the functioning of the fiscal space implies the establishment of a feedback relationship between the actions of the State in terms of the collection and use of taxes and their evaluation by citizens. Currently, many communities use mechanisms for citizen participation in the use of community funds by setting up online voting for community budgets. Such a mechanism is quite effective and makes it possible to direct funds to the needs supported by the majority of the population. Thus, the activation of the processes of digitalization of the fiscal space

in Ukraine will contribute to the development of partnership between the controlling bodies in the field of taxation and taxpayers, which in the redistributive budget-tax mechanism will necessarily lead to the synergy of social effects.

3 Monitoring of fiscal and budgetary indicators of social sphere provision

The social sphere is an important component of ensuring the vital activities of society, contributes to human development and reproduction of human capital, the formation of a certain standard of living in society. Under the definition of the social sphere it is appropriate to understand the totality of all spheres of life of society, interconnected with state and non-state institutions, organizations and enterprises, which ensure the general standard of living of citizens and contribute to the growth of their well-being in the state, while creating optimal conditions for the realization and self-realization of abilities and interests of the same citizens (Pigul, 2013). All branches of the social sphere in the economic literature are divided into two groups:

1) Market or autonomous – trade, public catering, household services, housing and communal services, tourism, revenue objects of the recreational complex (Lazutina, 2013);

2) non-market or budgetary – health care, education, science, culture and sport, recreational facilities requiring state or regional (local) financial intervention (Tsaruk, 2009).

In Ukraine, the priority task of the state policy aimed at socio-economic development of society is reorientation to ensure a high level of security in the social sphere, which requires a scientifically based development strategy with the involvement of significant financial resources, taking into account the experience of foreign countries in the direction of implementation of fiscal policy (Kalnytska, 2017).

The functionality of the state tax policy through the prism of regulatory instruments is capable of influencing the rationalization of financial support to the priority areas of society's development. The symbiosis of fiscal, distributive and regulatory functions of taxes in modern conditions of development should serve as a tool for balancing and rationalization of the socio-economic sphere. Restoration of critical and residential infrastructure facilities, provision of social security and protection of citizens are in the focus of management decisions regarding the implementation of an effective fiscal policy.

Considering the intensive nature of decentralization processes in Ukraine, it is important to study the interdependence of parameters of interbudgetary relations. It is the dynamics and forecast

trends in the administration of taxes and fees to budgets of all levels that form the basis for making important fiscal decisions in the perspective of financing the social sphere. The disparities in regional development and changes in the parameters of the financial potential of territorial communities require the state administration and local self-government bodies to take joint measures to optimize financial flows and the social sphere, not only at the expense of tax payments and interbudgetary transfers, but also taking into account international financial programs.

Therefore, it is advisable to monitor the correlation between the revenues of local budgets and the expenditures in the social sphere in order to build effective vectors for the development of fiscal policy at the state and territorial levels in the context of ensuring public welfare.

It should be noted that in the social sphere complex subsystems (health care, education, culture, sports, etc.) have been formed, which function on different bases of financial support: budget financing, financing on the basis of budget substitution and self-financing (Pidlypna, 2014).

The total volume of local budget spending on social services has more than doubled over the past decade (Figure 1).

The main expenditures in the social sphere are expenditures on housing and communal services, health care, mental and physical development, education, social protection and social security. The data presented in Table 1 show that during the period under study significant changes took place in the structure of spending on the social sphere: the specific weight of spending on health care on social protection and social security significantly decreased, the share of spending on education increased.

The key role in financing the above-mentioned expenditures is played by the revenues of local budgets, the volume of which has been increasing over the past decade (Figure 2).

It should be noted that budget execution indicators characterize the overall socio-economic state of a given territorial unit and the prospects for its further development. The presence of sufficient financial resources in local budgets is a proof that the territorial community is able to provide quality and diverse services to its residents, initiate social and infrastructure projects, create appropriate conditions for the development of entrepreneurship and investment attraction, implement local community development programs, and finance measures to improve living conditions of its residents. The effectiveness of such actions will be significantly increased by the formation of a thorough information base for the adoption of relevant fiscal decisions, including on the basis of methods of mathematical analysis.

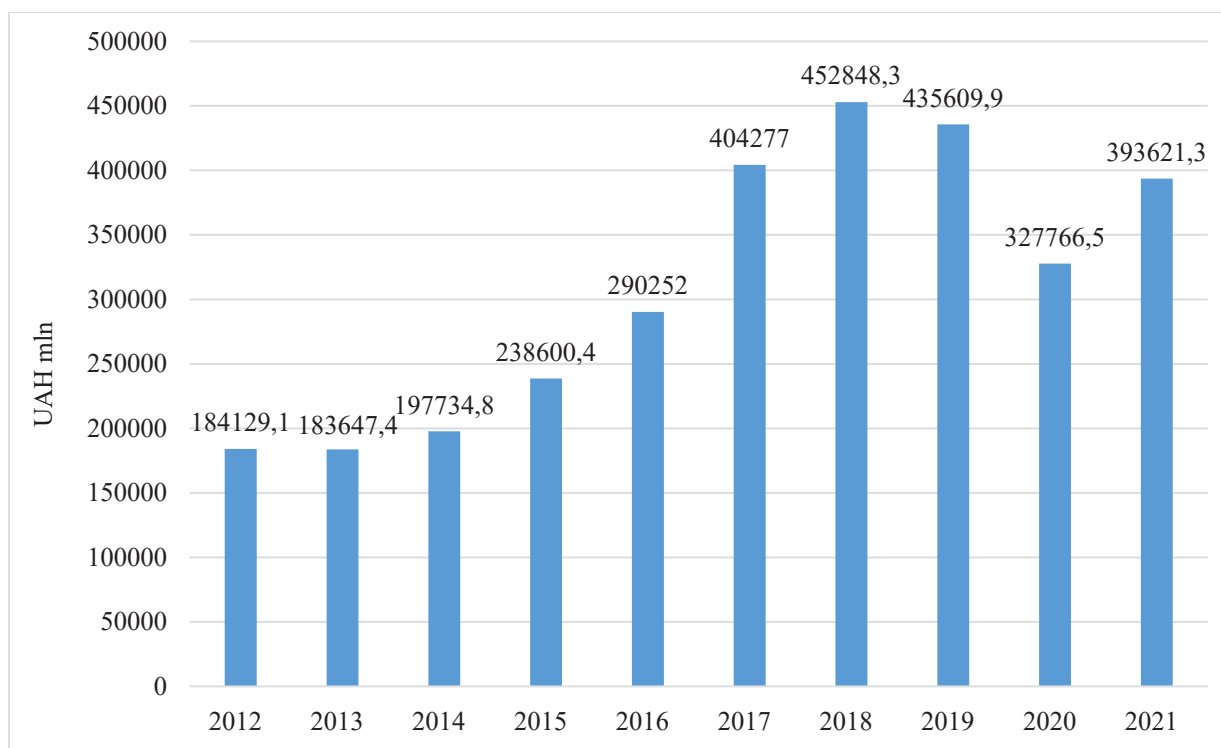


FIGURE 1 The total volume of expenditures of local budgets of Ukraine in the social sphere for 2012–2021

Source: built on the basis of State budget web portal for citizens. Local budgets. E-source: <https://openbudget.gov.ua/national-budget/incomes>

4 Modeling the dependency of the social sphere

In order to get an idea about the existence and the nature of the connection between the revenues of the local budgets and the expenditures in the social sphere, a graphical method was used, the essence of which is the creation of a correlation graph in the system of rectangular coordinates (Roik, Prysiashnyuk, Denisyuk, 2017). The value of the factor characteristic (local budget revenues) is plotted on the abscissa axis, and the value of the result (local budget social expenditures) is plotted

on the ordinate axis. The correlation field obtained in this way indicates the existence of a strong direct relationship between these characteristics, as the plotted points are closely grouped around a straight line (see Figure 3).

Tax revenues and official transfers from state administration bodies play a key role among the revenues of local budgets. Their specific weight in the total volume of revenues of local budgets of Ukraine in the last ten years was more than 90%. The specific weight of tax revenues increased by 20% during the research period, while the

TABLE 1 The structure of expenditures of local budgets of Ukraine in the social sphere for 2012–2021, %

Year	Housing and communal services	Health care	Spiritual and physical development	Education	Social protection and social security
2012	10,2	24,2	5,4	35,4	24,8
2013	3,9	25,1	5,6	37,1	28,3
2014	8,6	23,3	5,7	34,5	27,9
2015	6,6	24,9	5,1	33,9	29,5
2016	6,0	21,7	5,1	31,3	35,9
2017	6,7	21,1	5,1	32,3	34,8
2018	6,6	20,6	4,1	36,6	32,1
2019	7,9	20,6	4,9	43,0	23,7
2020	9,8	15,5	6,5	60,8	7,3
2021	14,4	8,4	6,8	63,3	7,1

Source: built by the author

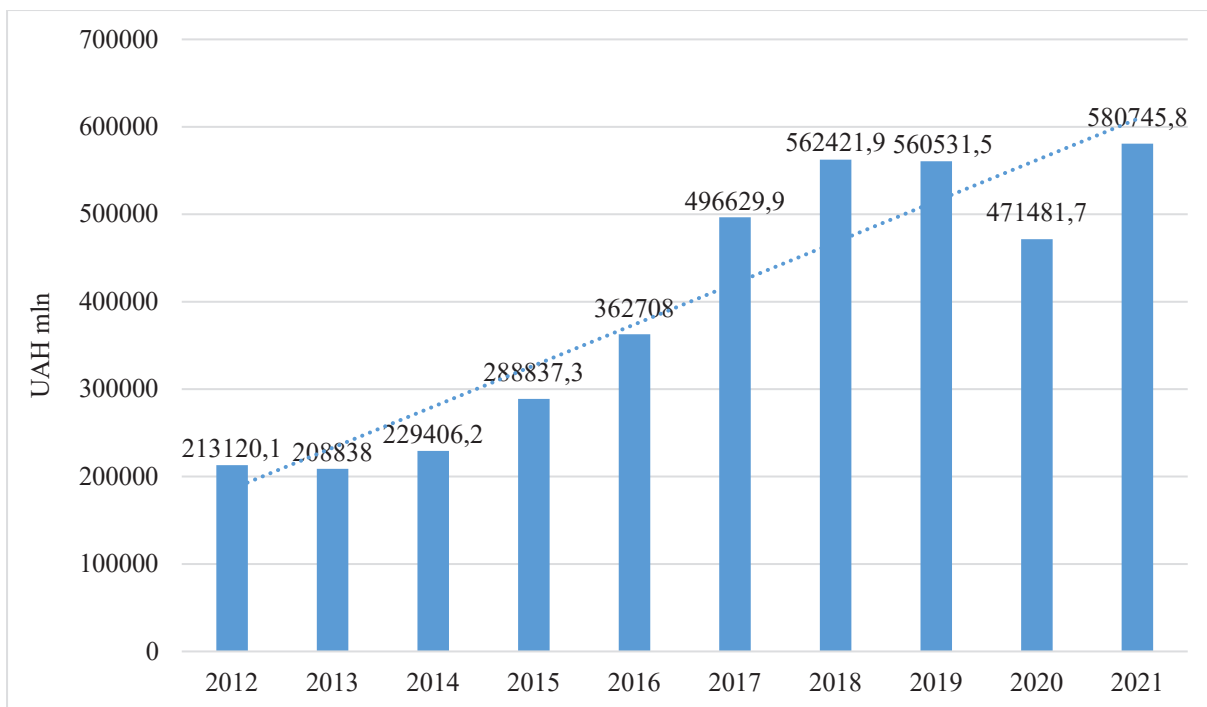


FIGURE 2 Total revenues of local budgets of Ukraine for 2012–2021

Source: built on the basis of Implementation of local budget revenues. Ministry of Finance of Ukraine.

E-source: <https://mof.gov.ua/uk/vykonannia-dokhodiv-mistsevykh-biudzhetiv>

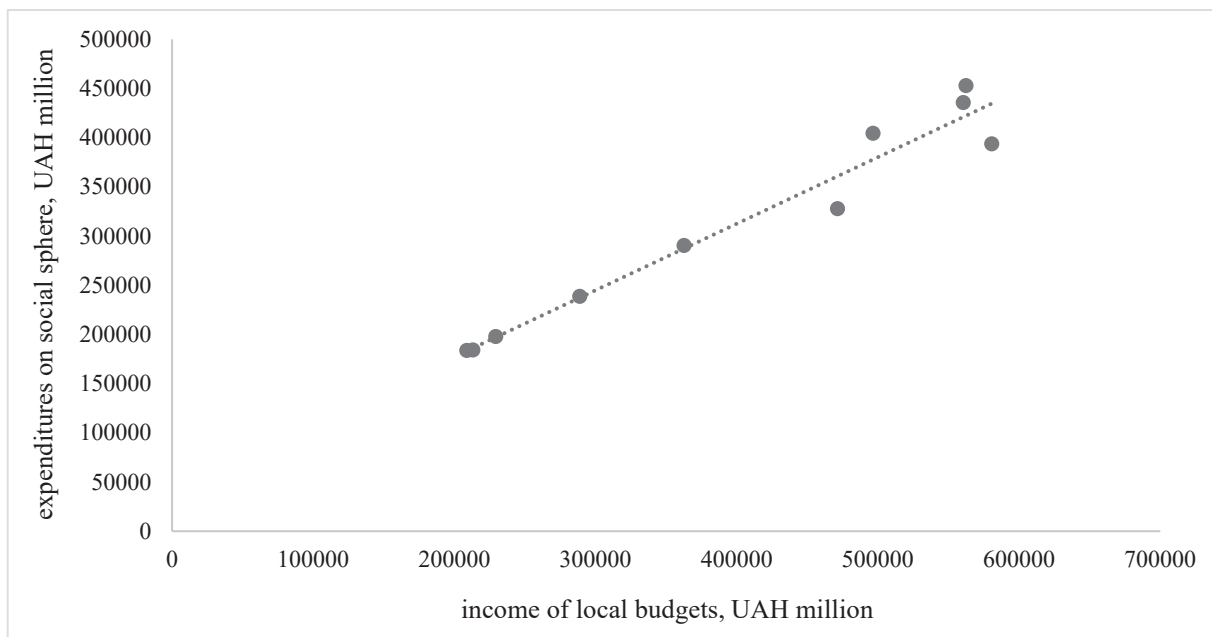


FIGURE 3 Correlation graph between local budget revenues and social expenditures

Source: built by the author

specific weight of official transfers decreased by 21% (see Figure 4).

In order to establish the cause-effect relationship between tax revenues, official transfers and the amount of local budget spending on social services, the following two-factor model is constructed: a linear regression model (of the type $y = a + b_1x_1 + b_2x_2$) (Litnarovych, 2011), with tax revenues (x_1) and

official transfers (x_2) as factor variables and the amount of social spending (y) as the outcome variable. The tools of the STATISTICA 10 application program (Fetisov, 2018) are used to obtain and estimate the relevant model parameters.

The model is as follows:

$$y = 416 + 0.59x_1 + 1.01x_2$$

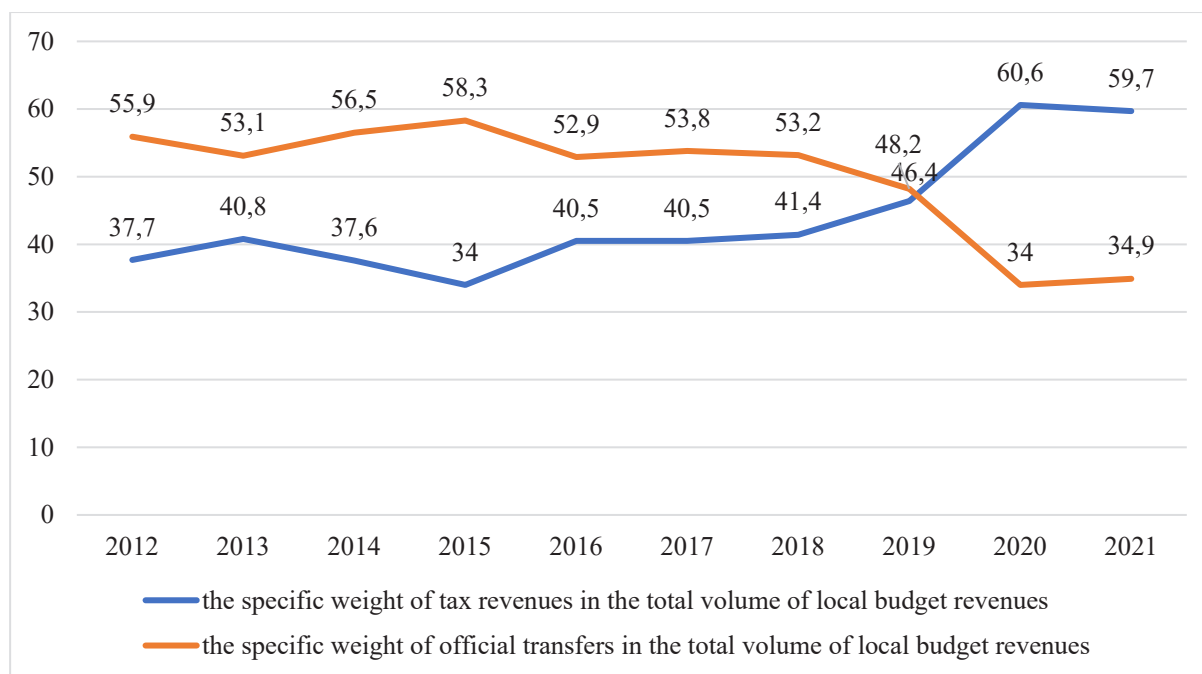


FIGURE 4 Dynamics of the specific weight of tax revenues and official transfers in the total volume of local budgets for 2012–2021

Source: built by the author

The obtained parameters, like the model itself, are statistically significant, and the standardized β coefficients indicate that the volume of tax revenues has the greatest impact on the performance indicator (β coefficient = 0.61). The coefficient of multiple correlation (R) characterizes the quality of the obtained model, in this case it is 0.992, which indicates the presence of a high correlation in the model. The coefficient of determination (R^2) is 0.984, which indicates the correspondence between the original data and the regression model. Thus, the obtained model explains 98.4% of the variation, which means the correct choice of deterministic features; only 1.6% of the variation is due to the influence of other factors that affect the amount of spending on the social sphere, but are not included in the model.

Analogous two-factor models were used to describe the impact of the above factors on each of the components of social expenditure. Their parameters and corresponding indicators are shown in the Table 2.

The constructed models are statistically significant, and the standardized β coefficients indicate that tax revenues have the greatest impact on the volume of spending on housing and community services, mental and physical development, and education. In the case of health expenditure, the impact of tax revenues and official transfers is equal. As for expenditures on social protection and social security, they are strongly dependent on the volume of official transfers, as evidenced by the high value of the β -coefficient (0.94) and, accordingly, the coefficient of determination $R^2 = 0.690$.

TABLE 2 Parameters of the model and their indicators

N _o	y	Model	β -coefficients	R	R^2
1	Housing and communal services	$y = -402 + 0,11x_1 + 0,09x_2$	$\beta_1 = 0,63$ $\beta_2 = 0,24$	0,804	0,647
2	Health care	$y = 43 + 0,10x_1 + 0,22x_2$	$\beta_1 = 0,46$ $\beta_2 = 0,46$	0,827	0,684
3	Spiritual and physical development	$y = 169 + 0,04x_1 + 0,02x_2$	$\beta_1 = 0,81$ $\beta_2 = 0,20$	0,950	0,902
4	Education	$y = 1287 + 0,40x_1 + 0,14x_2$	$\beta_1 = 0,89$ $\beta_2 = 0,14$	0,940	0,884
5	Social protection and social security	$y = -682 - 0,05x_1 + 0,54x_2$	$\beta_1 = -0,20$ $\beta_2 = 0,94$	0,831	0,690

Source: built by the author

The resulting models show that tax revenues significantly affect the level of social spending, regardless of the level of socio-economic development of the region. The only exception is spending on social security and social protection. In the composition of tax revenues the largest specific weight is occupied by taxes on the income of individuals, therefore the use of various instruments of tax administration will allow to control the efficiency of administration of this type of taxes and, accordingly, to increase the volume of revenues to local budgets. This will help to increase the volume of financing of the social sphere.

4 Conclusions

Thus, the intensification and diffusion of information technologies and electronic devices will contribute to the functioning of the bipolar fiscal space: on the one hand, the innovation and modernization of approaches to tax administration and the implementation of control and monitoring functions by tax authorities; on the other hand, the improvement of information and service provision and support to taxpayers' tax calculations and declaration actions. This approach will serve as a driving force in the field of optimization of economic relations between the subjects of fiscal policy in order to increase the budgetary potential for implementation of priority social programs.

As a result of mathematical analysis and construction of models of dependence of the social sphere on fiscal policy instruments it was established that the financial provision of social articles in the budget mechanism is significantly correlated with the amount of tax revenues to the budgets of all levels. The two-factor model, based on the characteristics of the impact of tax revenues and official transfers on the development of the social sphere, testified to the priority of taxes and fees in the architecture of budget revenues, in particular, the tax on the income of individuals due to its highest specific weight.

However, the current risks of fiscal policy require the state administration and local self-government bodies to coordinate actions to improve it by optimizing the tax burden, increasing the priority of the principle of social justice in taxation, ensuring transparency and informational activity of control bodies, etc. At present, it is also important to balance the instruments of fiscal policy in the context of achieving social effects, especially for those groups of citizens who have felt the consequences of military actions the most. The essence of the social state is to promote the formation of such elements of modern society as the social market economy, social democracy and social ethics. It is possible to achieve the formation and development of certain structural elements with the help of state administration, if there is an appropriate range of forms and methods of fiscal regulation.

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