Marketing and Management of Innovations
Issue 4, 2020

ISSN 2227-6718 (on-line)
ISSN 2218-4511 (print)

https://doi.org/10.21272/mmi.2020.4-15

JEL Classification: H11, H72, O30

Mirdamad Mirsadiq Sadigov,
Dr. Sc., Professor, Azerbaijan State University of Economics, Azerbaijan
ORCID ID, 0000-0002-8090-5832
email: Mirdamads@icloud.com

Correspondence author: Mirdamads@icloud.com

STATE FINANCIAL MANAGEMENT AS THE BASIS FOR INNOVATIVE DEVELOPMENT: CROSS-COUNTRY ANALYSIS

Abstract. *A key element in ensuring effective public activity is the management of state financial resources and coordination of its financial flows. Given the rapid pace of innovative technologies development and the formation of the course of countries' development towards global digitalization, there is a need to study the relationship between the level of innovative development of the country and its state financial management. This article summarizes the arguments and counterarguments within the scientific discussion on the place and prospects of state participation in the formation of the basis for innovative development. The main purpose of the study is to confirm the hypothesis about the functional links between the main components of budgetary resources and the level of innovative development of the country. In this regard, the array of input data is presented in the form of nine independent variables (regressors) and two dependent variables (regressands). Four of the independent variables denote individual budget revenue items, and five – expenditure, while the dependent variables (regressands) identify the level of innovation development countries. The study of the impact of state financial resources on the level of innovative development of the country is carried out in the following logical sequence: the formation of an array of input data; formalization of functional relationships between variables by constructing two-panel multifactor regression models with random effects and interpretation of the obtained results. The object of the study is nine CIS countries and their closest neighbours. The study period covered 2011-2018. The study empirically confirms the above hypothesis, which is evidenced by the following identified dependences. The level of innovation development (presented by the Innovation index) depends on changes in the structure of the state budget, in particular in direct proportion to Compensation of employees and inversely in proportion to the items Revenue and Other expense. At the same time, the change in research and development expenditures of the country is directly proportional to the items Compensation of employees and Subsidies and other transfers, and inversely proportional to item Tax revenue and expense. The results of the study could be useful for public authorities that provide public financial management and seek to optimize activities to support innovative development.*

Keywords: state financial management, government expenses, government revenues, innovative development, CIS countries, regression analyses.

Introduction. Today, most economies around the world are in a state of uncertainty due to the unprecedented crisis over the COVID-19 pandemic. It has affected not only the economic sphere of life but also exacerbated social and political imbalances in countries. In such conditions, there is a search for new ways and opportunities for development for the proper functioning of the national economy, which is usually associated with innovative technologies. Ensuring innovative development has long been considered one of the promising areas of public policy, as evidenced by the impact of intellectualization of labour and development of high-tech industries on the international competitiveness of the country and its economic growth. At the same time, in the current conditions, this issue becomes especially relevant, because it allows to technologically optimize production processes, provide remote service and move to a new type of information and network economy. Despite the urgency of this issue, there is a problem of financial support for innovative development in many countries, which is associated with the system of

Cite as: Sadigov, M. M.(2020). State Financial Management as the Basis for Innovative Development: Cross-Country Analysis. *Marketing and Management of Innovations*, 4, 191-201. http://doi.org/10.21272/mmi.2020.4-15

public financial management. Effective management of public finances is essential not only for the macroeconomic stability of the country and its sustainable development but also is a prerequisite for its innovative product, which is why this work is devoted.

Literature review. The effectiveness of budget management as the basis of public financial management is widely disclosed in the world scientific community. Particular attention in scientific works is given to works in the context of fiscal policy formation (Eddassi, 2020; Nisa and Kavya, 2018; Bilan et al., 2018), ensuring budget transparency (Molotok, 2020a; Fomina and Vynnychenko, 2017; Zakutnia and Hayriyan, 2017) and the spread of the reform of financial decentralization, which provides for the distribution of financial resources between state and local authorities in favour of the latter and their effective management. Thus, a study led by Chygryn et al. (2018) surveyed the relationship between fiscal decentralization and social and economic development, which revealed both positive and negative patterns. Molotok (2020b) focuses on an empirical study of the impact of fiscal decentralization on the investment attractiveness of a country and region. In the context of public financial management, the study Aljaloudi and Warrad (2020) deserve attention, which analyzed the optimal size of the public sector, which ensures the highest rates of economic growth, as well as selected works (Brychko et al., 2020; Kaya, 2020, Pilia, 2017) on the relationship between the level of development of the country and the efficiency of its financial system. At the same time, in some works (Bilan et al., 2019, 2019b, Vasilyeva et al., 2018, 2020) the importance of the institutional quality of the public sector for the social and economic development of the state and the organization of general financial management properly is emphasized.

The study of the possibilities of optimization of management and financial management systems in today's crisis and the spread of coronavirus infection COVID-2019 with a variety of new technologies is especially relevant today. Thus, in the work of Lopez and Alcaide (2020) the possibilities of blockchain technologies, artificial intelligence and the Internet of Things are investigated; in the work of Balaraman (2018) – information and communication and information technology initiatives in the field of public administration, in a study led by Bilan et al. (2019a) – the leading indicators of industry 4.0. It stands to mention that the technological achievements of nowadays allow not only to establish the management process but also to ensure the financial inclusion of the population (Didenko et al., 2020), which is the key to social security. The numerous scientific studies reflect ensuring the innovative development of the country acquires a new meaning in current economic conditions. Thus, Sineviciene et al. (2018) investigated the relevant channels of promotion of innovative changes, which allow achieving the efficiency of transformation processes in the economy. Instead, Samoilikova (2020) studied the impact of fiscal policy indicators (as signs of competitiveness) on the dynamics of innovation activity, and Bhowmik (2018) on the contrary the relationship of foreign direct investment with economic growth in the context of the financial crisis. Noteworthy is the study Nguedie (2018), which empirically proves the sensitivity to investment growth depending on the level of corruption in the country. Despite numerous studies, the relationship between public financial management and innovative development through the prism of the main components of public finance – revenues and expenditures, has received insufficient attention. It determines the formation of the next goal of this study – to confirm the hypothesis about the functional links between the main components of budgetary resources and the level of innovative development of the country. Methodology and research methods. Figure 1 provides the ratio between the countries of the selected sample according to the leading indicators of their innovation development – Global Innovation Index (GII) and Research and development expenditure in 2018. The size of the bubbles varies according to GDP per capita. Note that Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations, calculated GII. It consists of two sub-indices such as the Innovation Input Sub-Index (includes integrated indicators that stimulate innovation in the economy: institutions, human capital and research, infrastructure development, market and business sophistication)

and the Innovation Output Sub -Index (indicators that indicate the presence of innovation in the economy: knowledge and technology outputs and creative outputs).

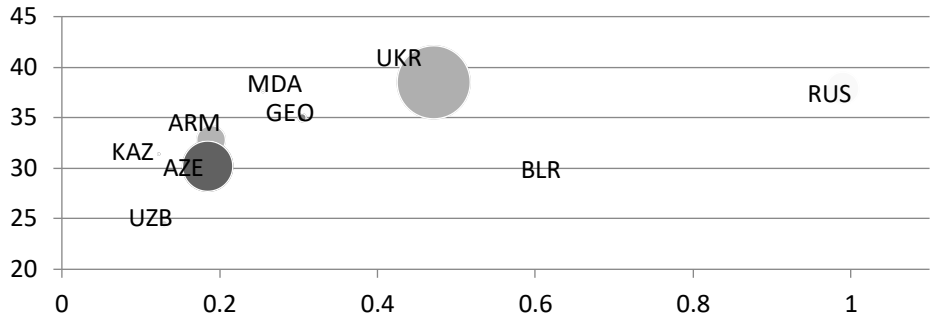


Figure 1. Global Innovation Index (units) and research and development expenditure (% of GDP) of CIS countries and their closest neighbours in 2018 (bubbles sized by GDP per capita)
Source: developed by the author.

Figure 1 stated that in 2018, among the CIS countries and their closest neighbours, the Russian Federation (0.99% of GDP) and Belarus (0.61% of GDP) have the highest share of research and development expenditure. In Azerbaijan, this figure is 0.18% of GDP in 2018, which is 0.03% less than in 2011. Regarding GII, the highest value is Ukraine (38.5 units, which ranks 43rd among 126 countries in the overall ranking) and Russian Federation, Ukraine (37.9 companies, which ranks 46th among 126 countries in the overall ranking). Azerbaijan ranks one of the last places among the selected countries (30.2 units) and in the overall ranking among 126 countries ranks 82nd (for comparison, in 2011 it had an index of 29.2 companies and ranked 88th). Table 1 provides an analysis of the main articles of the state financial resources of Azerbaijan. Similarly to the conclusions on the Global Innovation Index, the country occupies one of the last positions among the studied countries.

Table 1. The main items of state financial resources in Azerbaijan for 2011-2018, million dollars

Year	Indicators								
	Grants and other revenue	Revenue, excluding grants	Social contributions	Tax revenue	Compensation of employees	Expense	Interest payments	Other expense	Subsidies and other transfers
2011	16100,6	23687,6	1226,8	6366,9	1765,8	9623,9	169,6	3158,7	3593,7
2012	14188,9	22594,9	1422,5	6995,5	1704,4	12145,1	90,2	4806,1	4231,9
2013	14135,1	23508,9	1584,2	7789,6	1724,2	12174,9	154,5	4225,2	4597,8
2014	13413,3	23544,5	1743,8	8387,4	1946,2	13042,7	84,2	4212,2	5147,8
2015	8313,5	18589,1	1805,2	8485,0	1943,6	13480,1	211,4	4023,9	5656,8
2016	10384,2	21100,4	1921,0	8795,2	2218,9	16433,2	614,1	5716,9	5993,9
2017	13326,6	24671,6	2085,7	9259,3	2398,3	19665,6	495,2	9596,9	5836,1
2018	18853,5	31569,6	2327,1	10389,0	2801,0	17141,5	769,4	5506,0	6104,6

Source: developed by the author.

The presented structure of public financial resources includes nine indicators: the first four indicate revenue items, the remaining five – expenditure. The dynamics of these indicators indicate minor changes during the study period, which is also confirmed by the calculated growth rate (Figure 2).

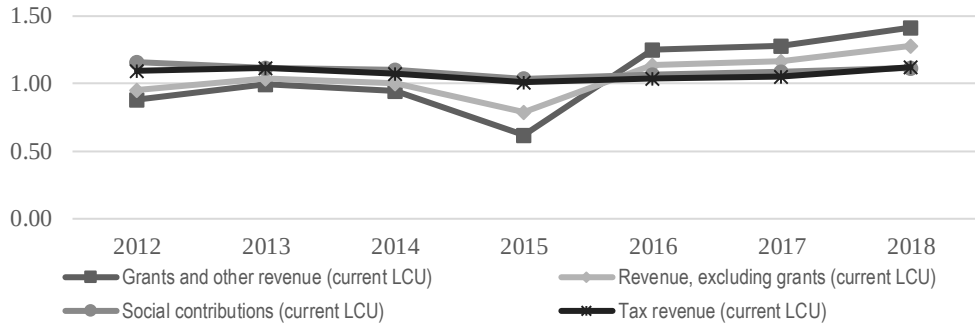


Figure 2. The growth rate of the main income items of state financial resources in Azerbaijan for 2011-2018

Source: developed by the author.

Figure 3 shows that there was a sharp decline in Grants and other revenue and Revenue in 2015, excluding grants, but the following year the values levelled off and gained positive momentum. Besides, regarding the cost of public financial resources, there was the abrupt changes in Interest payments and Other expense in comparison with other articles.

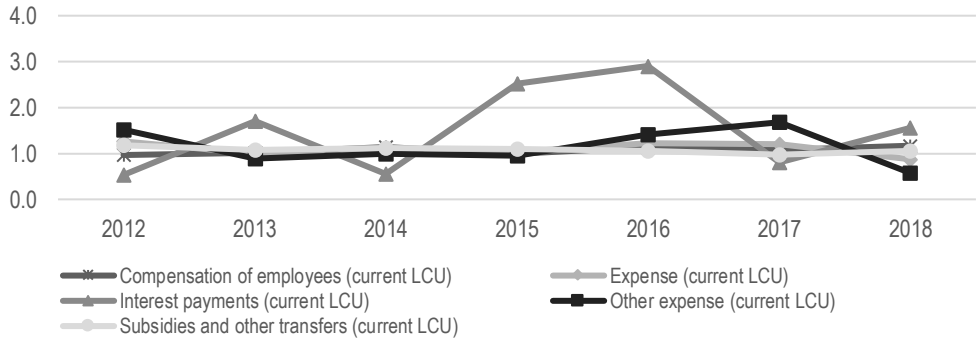


Figure 3. The growth rate of the main expenditure items of state financial resources in Azerbaijan for 2011-2018.

Source: developed by the author.

Methodology and research methods. The study of the intensity of innovative development of countries and identify critical factors of public financial management that affect it, was conducted using the statistical package STATA 12, and, in particular, the built-in module Longitudinal/panel data. In turn, this module allows processing panel data, and special operators xtreg and areg. Panel data was chosen as the input data for the study, and not the standard set of data that have one-dimensional structures because panel data has many advantages over one-dimensional data (Ayvazyan and Mkhitaryan 1998) as follows:

- panel data avoids such a phenomenon as a «shift of aggregation» of data because the study covers a long period, which is monitored for a particular indicator;

- panel data always include a large number of observations in the context of different objects (countries, enterprises, etc.), so the number of degrees of freedom increases, which reduces the degree of collinearity between factor variables. It provides confidence in the effectiveness of the constructed model;
- when analyzing similar or adjacent objects, grouped by a specific criterion, panel data enables following the evolution of changes in a particular standard and identify the causes of these changes;
- use of panel data makes it possible to analyze and take into account individual characteristics between different economic entities.

A regression model of type (1) is used to study the panel data and identify the strength of the relationship between the factor and the resulting variable.

$$y_{it} = \alpha + X_{it}^{*}\beta + \nu_{it}, i = 1,\dots,N; t = 1,\dots,T, \quad (1)$$

where i – serial number of the object of study; t – research period; α- free member; β- vector of dimensional coefficients K*1; X_{it}^{*} - vector-row matrix K explanatory variables; ν_{it} - regression error.

$$\nu_{it} = u_i + \varepsilon_{it} \quad (2)$$

where ui- individual effects of observations; εit- model residuals.

The individual effects of observations in the panel data are not a model. It is a common random component of the regression model. The following two main types of models can be built during the study of panel data:

1. Fixed effects model;
2. Random effects model.

The peculiarity of the fixed effects model is that each factor variable is not random, i.e. it was added to the model only after a detailed study of a phenomenon and has its unique impact on the resulting variable. In contrast to the fixed effects model, in the random-effects model, a particular set of indicators was selected from a large set of variables. Besides, this set was used in further studies, i.e. the possible influence of excluded indicators were not ruled out. To determine which type is best suited for a particular set of panel data, unique criteria (tests) are used as follows: the Wald test, the Broysch-Pagan test, the Hausman test (Kolenikov, 2001). When analyzing the results obtained, it is necessary to take into account the values of the main parametric criteria, which can be used to assess the accuracy and significance of the model results. The mentioned above values of the main parametric criteria are the coefficient of determination, the Wald and Student's standards. Interpretation of these criteria is as follows: the coefficient of determination R2 shows what part of the variation of the performance indicator is related to the variation of the factor indicators. Critical values of the coefficient of determination 0 and 1 inclusive. The closer the value is to 1, the better the independent variables are chosen to formalize the relationships with the dependent variable. The Wald criterion (χ2) is used to assess the statistical significance of the constructed model. The actual value of χ2 is compared with its table at given degrees of freedom and level of significance. If the condition is met under which χ2calc>χ2tabl and the probability p is less than / equal to 0.05 (at a given confidence level of 0.95), the hypothesis of the significance of the relationship between the dependent and factor variables is confirmed if on the contrary it is rejected.

The Student's criteria (t-test) are used to assess the statistical significance of the parameters of the regression equation. The calculated value of the t-criterion is compared with the tabular value of the table, which is selected from the relevant statistical tables at a certain level of significance and degrees of freedom. If ttabl<tcalc indicates the significance of the coefficient of determination. In the case of the obtained coefficients of the equation, this equality, as well as the probability value p, for each value of the criterion, which must also be less than / equal to 0.05 (for a given confidence level of 0.95) indicates that

they are significant in the model and other than 0. To confirm the hypothesis of identifying the impact of public financial management on the innovative development of the country, a set of panel data was formed from many indicators describing essential items of public financial resources of the study country, as well as indicators reflecting the presence of innovation in the country. A total of 9 countries were considered. Some of these countries are members of the CIS (Union of Independent States). In contrast, others are close neighbours of these countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, Russia, Ukraine and Uzbekistan. The study period covered 2011-2018. The databases such as World DataBank Global Financial Development and TheGlobalEconomy provided all input data. Table 2 presents in more detail the considered indicators. The indicators of public management were chosen precisely as decisive. In total, nine indicators from the section of public financial resources were studied in terms of revenues (R1-R4) and expenditures (E1-E5). These nine indicators, as well as two additional ones such as GDP and the consumer price index (C1, C2), which are considered control in the model, play the role of independent variables (regressors), the impact of which is tested on innovation development (I1, I2).

Table 2. The array of input data

Symbol of the indicator	Indicator	The content of the indicator	The role of the indicator
R1	Grants and other revenue	Grants from other foreign governments, international organizations, and other government units; interest; dividends; rent; requited, non-repayable receipts for public purposes and voluntary, unrequited, non-repayable receipts other than grants.	Independent variables
R2	Revenue, excluding grants	Cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales.	
R3	Social contributions	Social security contributions by employees, employers, and self-employed individuals, and other contributions whose source cannot be determined.	
R4	Tax revenue	Compulsory transfers to the central government for public purposes.	
E1	Compensation of employees	All payments in cash to employees in return for services rendered, and government contributions to social insurance schemes.	
E2	Expense	Cash payments for operating activities of the government in providing goods and services.	
E3	Interest payments	Interest payments on government debt—including long-term bonds, long-term loans, and other debt instruments—to domestic and foreign residents.	
E4	Other expense	Dividends, rent, and other miscellaneous expenses, including provision for consumption of fixed capital.	
E5	Subsidies and other transfers	Subsidies, grants, and other social benefits include all unrequited, non-repayable transfers.	
C1	GDP per capita	Per capita gross domestic product.	Control variables
C2	Inflation, consumer prices	The consumer price index.	

Continued Table 2

I1	**Innovation index**	**Ranking the world's countries and economies through innovational measures, environments, and outputs.**	**Dependent variables**
I2	Research and development expenditure	Expenses are associated directly with the research and development of a company's goods or services and any intellectual property generated in the process.	

Source: developed by the author.

Results. A part of the data was collected in absolute units (million dollars), while another part – in relative (%). Thus, the generated data sample needs to be normalized. Therefore, the values of all indicators were logged. For a comprehensive analysis of the impact of public financial management on the innovative development of the country, the research was conducted in two stages: using as a longitudinal variable, first the innovation index, and then the amount of investment in research and development. Given the obtained values of the Broysch-Pagan and Hausman tests for both cases, a multifactor regression model with random effects will be built. Table 3 demonstrates the results of modelling, where the dependent variable is the innovation index (I1).

Table 3. Results of a regression model with random effects, which reflects the functional relationship between public financial resources and the innovation index (I1)

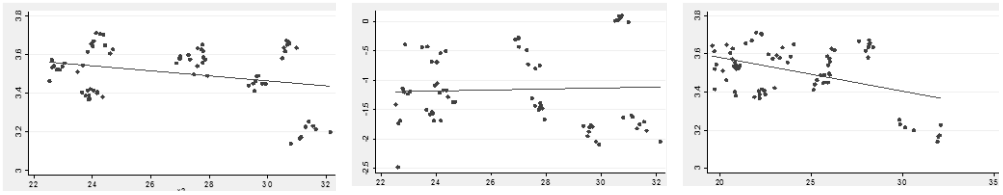
Variables	Parameter	t-test	p-level
R1	0,05	1,44	0,15
R2	-0,43	-3,18	0,00
R3	-0,01	-1,62	0,10
R4	0,09	1,02	0,31
E1	0,20	4,15	0,00
E2	0,09	0,81	0,42
E3	-0,04	-1,40	0,16
E4	-0,05	-3,43	0,00
E5	0,10	1,51	0,13
C1	0,01	1,27	0,21
C2	-0,01	-0,89	0,37
_cons	4,14	18,26	0,00
	R^2=0,87		
	χ^2=158,8 p=0,0000		

Source: developed by the author.

Given the results, in particular, the benchmark is the value of the t-test, and p-level less than 0.05 (with a given confidence level of 0.95) a statistically significant effect on the dependent variable I1 have three independent variables: R2, E1 and E4. The regression equation has the following form (3).

$$\mathrm{I1} = 4{,}14 - 0{,}43R2 + 0{,}20E1 - 0{,}05E4 \quad (3)$$

The value of the coefficient of determination *R2* is equal to 0.87. It means that 87% of the change in the indicator of innovative development depends on the change of this set of regressors and indicates the high reliability of the results. Besides, the calculated value of the criterion χ^2 158.8 significantly exceeds its tabular value of 19.67 (with a confidence level of 0.95 and degrees of freedom 11), which confirms the statistical significance of the whole model. Figure 4 visualizes the closeness and nature of the relationship between statistically significant regressors and the regressor.



R2=>I1 E1=>I1 E4=>I1

Figure 4. Diagram of scattering the dependence of the index of innovative development of countries on change Revenue, excluding grants (R2), Compensation of employees (E1) and Other expense (E4)

Source: developed by the author.

Thus, the following dependencies describe the nature of the functional relationship between public financial resources and the innovation index:

- with an increase in revenue, excluding grants (R2) by 1%, the innovation index of the studied countries will decrease by 0.43%;
- an increase in Compensation of employees (E1) by 1% will increase the innovation index by 0.2%;
- with an increase in Other expense (E4), which includes subsidies, grants, and other social benefits include all unrequited, non-repayable transfers by 1%, the innovation index will decrease by 0.05%.

Building a similar multifactor regression model provides the analysis of the functional dependence of investment in research and development on a certain set of indicators of public financial resources. Table 4 presents the simulation results.

Table 4. Results of a regression model with random effects, which reflects the functional relationship between public financial resources and investment in research and development (I2)

Variables	Parameter	t-test	p-level
R1	-0,09	-0,81	0,42
R2	0,44	0,99	0,32
R3	0,04	1,35	0,18
R4	-1,54	-5,62	0,00
E1	1,04	6,78	0,00
E2	-1,00	-2,65	0,01
E3	0,03	0,29	0,77
E4	-0,03	-0,65	0,51
E5	1,15	5,32	0,00
C1	0,01	0,45	0,65
C2	0,11	2,75	0,01
_cons	-0,37	-0,49	0,62
	R^2=0,99		
	χ^2=379,91 p=0,0000		

Source: developed by the author.

Given the results, in particular, the benchmark is the value of the t-test and p-level less than 0.05 (at a given confidence level of 0.95), we have the following picture – a statistically significant effect on the dependent variable I2 have five independent variables: R4, E1, E2, E4 and C2. The regression equation has the following form (4).

$$I2 = -0{,}37 - 1{,}54R4 + 1{,}04E1 - 1{,}00E2 + 1{,}15E5 + 0{,}11C2 \quad (4)$$

The value of the coefficient of determination R^2 is equal to 0.99. That means that 99% of the change in investment in research and development depends on the change of this set of regressors and indicates a very high reliability of the results. Besides, the calculated value of the criterion χ^2 *379,91* significantly exceeds its tabular value of 19.67 (with a confidence level of 0.95 and degrees of freedom 11). In turn, it confirms the statistical significance of the whole model. Figure 5 visualizes the closeness and nature of the relationship between statistically significant regressors and the regressor.

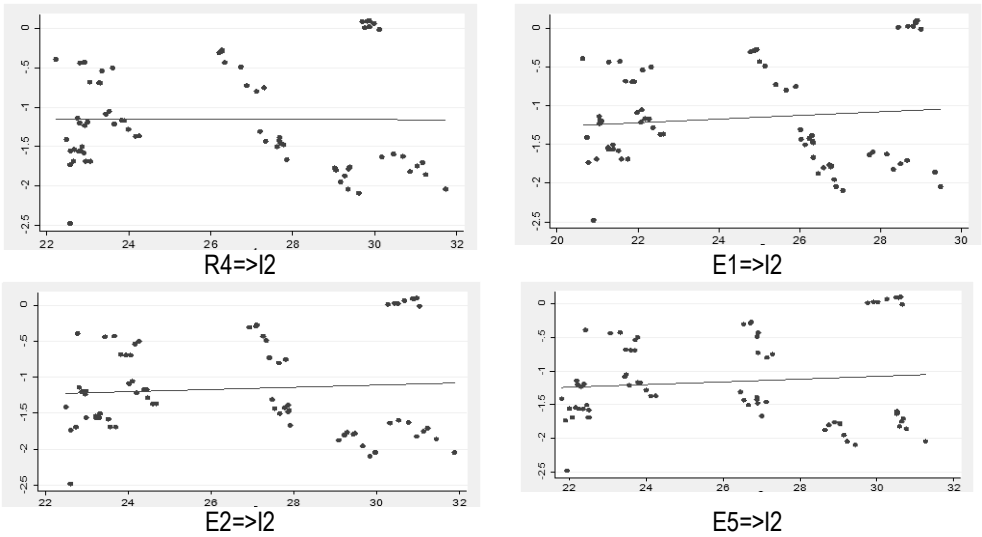


Figure 5. Diagram of the dependence scattering of the investments volume aimed at research and development of the studied countries on the change of Tax revenue (R4), Compensation of employees (E1), Expense (E2) and Subsidies and other transfers (E5)

Source: developed by the author.

Thus, the following dependencies describe the nature of the functional relationship between public financial resources and the innovation index:

- with an increase in Tax revenue (R4) by 1%, the volume of investments aimed at research and development of the studied countries will decrease by 1.54%;
- increase of Compensation of employees (E1) by 1% will increase the volume of investments in research and development by 1.04%;
- with an increase in Expense (E2), which includes cash payments for operating activities of the government in providing goods and services by 1%, the amount of investment in research and development will also decrease by 1%;
- with an increase in Subsidies and other transfers (E5) by 1%, the volume of investments in research and development will increase by 0.11%.

Conclusions. Following the purpose of the article, two multifactorial regression models with random effects were built for panel data of nine CIS countries and the nearest neighbouring countries during 2011-2018. The study empirically confirms the above hypothesis, as evidenced by the following identified relationships. The level of innovation development (represented by the innovation index) depends on changes in the structure of the state budget, in particular, directly proportional to the change Compensation of employees and inversely proportional to the change Revenue, excluding grants and Other expenses

include all unrequited, non-repayable transfers). Thus, the material encouragement of workers by budgetary institutions contributes to the development of the country's innovation potential, and the excessive tax burden and the growth of state subsidies constrain it. At the same time, the change in research and development costs in the country is directly proportional to the shift in Compensation of employees and Subsidies and other transfers, and inversely proportional to Tax revenue and expense. Furthermore, the volume of investment in the innovation sector in the country is positively affected by the budget items. At the same time, payments received mainly in the form of tax allocations, negatively affect investment in innovation, which provokes the transition of this sector into the shadows. The results of the study can be useful for public authorities that provide public finance management and seek to optimize activities to support the country's innovative development.

References

Aljaloudi, J. A., & Warrad, T. A. (2020). Economic Growth and the Optimal Size of the Public sector in Jordan. *Financial Markets, Institutions and Risks, 4(3),* 72-79. [Google Scholar] [CrossRef]

Ayvazyan, S. A., & Mkhitaryan, V. S. (1998). Applied statistics and foundations of ecnometrics. *Textbook for Universities*, *1022*.

Balaraman, P. (2018). ICT and IT Initiatives in Public Governance − Benchmarking and Insights from Ethiopia. *Business Ethics and Leadership, 2(1)*, 14-31. [Google Scholar] [CrossRef]

Baranovskyi, O. I. (2020). Regulation of functional and structural transformational processes in the financial sector. Financial and credit activity: problems of theory and practice, 1(32), 292-306. [Google Scholar] [CrossRef]

Baranovskyi, O. I. (2018). Quality of the transformational processes in the financial sector of the national economy: vectors of the measurement. Financial and credit activity: problems of theory and practice, 3(26), 350-367. [Google Scholar] [CrossRef]

Bhowmik, D. (2018). Financial Crises and Nexus Between Economic Growth and Foreign Direct Investment. *Financial Markets, Institutions and Risks, 2(1)*, 58-74. [Google Scholar] [Google Scholar]

Bilan, Y., Brychko, M., Buriak, A., & Vasilyeva, T. (2019). Financial, business and trust cycles: The issues of synchronization. *Zbornik Radova Ekonomskog Fakultet au Rijeci*, *37*(1), 113-138. [Google Scholar] [CrossRef]

Bilan, Y., Lyeonov, S., Vasylieva, T., & Samusevych, Y. (2018). Does tax competition for capital define entrepreneurship trends in eastern europe? *Online Journal Modelling the New Europe*, (27). [Google Scholar] [CrossRef]

Bilan, Y., Rubanov, P., Vasylieva, T., & Lyeonov, S. (2019a). The influence of industry 4.0 on financial services: Determinants of alternative finance development. *Polish Journal of Management Studies, 19(1)*, 70-93. [Google Scholar] [CrossRef]

Bilan, Y., Vasilyeva, T., Lyeonov, S., & Bagmet, K. (2019b). Institutional complementarity for social and economic development. *Business: Theory and Practice, 20*, 103-115. [Google Scholar] [CrossRef]

Boiarko, I. M. (2016). Praxeological and situational approaches in the formation of strategic accounting. Financial and credit activities: problems of theory and practice, 2(21), 80-90. [CrossRef]

Brychko, M., Bilan, Y., Lyeonov, S., & Mentel, G. (2020). Trust crisis in the financial sector and macroeconomic stability: A structural equation modelling approach. *Economic Research-Ekonomska Istrazivanja*. [Google Scholar] [CrossRef]

Chygryn, O., Petrushenko, Y., Vysochyna, A., & Vorontsova, A. (2018). Assessment of Fiscal Decentralization Influence on Social and Economic Development. *Montenegrin Journal of Economics*, *14*(4), 69-84. [Google Scholar] [CrossRef]

Didenko, I., Paucz-Olszewska, J., Lyeonov, S., Ostrowska-Dankiewicz, A., & Ciekanowski, Z. (2020). Social safety and behavioral aspects of populations financial inclusion: A multicountry analysis. *Journal of International Studies*, *13*(2). [Google Scholar] [CrossRef]

Eddassi, H. (2020). Fiscal Regime and Tax Policy in Resource-Rich Countries In The Process Of Globalization: Literature Review. *SocioEconomic Challenges, 4(2),* 67-77. [Google Scholar] [CrossRef]

Fomina, J., & Vynnychenko, N. (2017). Fiscal transparency: cross-country comparisons. *Business Ethics and Leadership, 1(2)*, 39-46. [Google Scholar] [CrossRef]

Hrytsenko, L. L., Roienko, V., & Boiarko, I. M. (2018). Institutional background of the role of state in investment processes activation. Financial and credit activities: problems of theory and practice, 1(24), 338-344. [CrossRef]

Kaya, H. D. (2020). The Efficiency of the Financial System: A Comparison of Developed and Less Developed Countries. *Financial Markets, Institutions and Risks, 4(2)*, 16-24. [Google Scholar] [CrossRef]

Kolenikov, S. (2001) Applied econometric analysis in the statistical package Stata. School of Economics.

Kuznyetsova, A. Y., & Klishchuk, O. V. (2017). Theoretical conception of price stability targeting arrangement: investigation of basic principles of implementation monetary regime. Financial and credit activity: problems of theory and practice, 2(23), 388-396. [Google Scholar] [CrossRef]

Lopez, B. S., & Alcaide, A. V. (2020). Blockchain, AI and IoT to Improve Governance, Financial Management and Control of Crisis: Case Study COVID-19. *SocioEconomic Challenges, 4(2),* 78-89. [Google Scholar] [CrossRef]

Molotok, I. (2020a). Analysis Of The Relevance Of Fiscal Decentralization In Ensuring Country Investment Attractiveness. *SocioEconomic Challenges, 4(2),* 99-105. [Google Scholar] [CrossRef]

Molotok, I. F. (2020b). Bibliometric and Trend Analysis of Budget Transparency. *Business Ethics and Leadership, 4(2)*, 116-122. [Google Scholar] [CrossRef].

Nguedie, Y. H. N. (2018). Corruption, Investment and Economic Growth in Developing Countries: A Panel Smooth Transition Regression Approach. *SocioEconomic Challenges, 2(1)*, 63-68. [Google Scholar] [CrossRef]

Nisa S., & Kavya M. S. (2018). An Evaluation of Financial Management System in Gulati Institute of Finance and Taxation an Autonomous Institution, Thiruvananthapuram, Kerala. *Financial Markets, Institutions and Risks, 2(2)*, 40-57. [Google Scholar] [CrossRef]

Pilia, G. (2017). Estonia and Lithuania in transition: A compared analysis of the change and its costs and benefits. *Business Ethics and Leadership, 1(2)*, 12-19. [Google Scholar] [CrossRef]

Rekunenko, I. I., Hrytsenko, L. L., Boiarko, I. M., & Kostyrko, R. A. (2019). Financial debt market in the system of indicators of development of the economy of the country. Financial and credit activities: problems of theory and practice, 2(29), 430-439.

Samoilikova, A. (2020). Financial Policy of Innovation Development Providing: The Impact Formalization. *Financial Markets, Institutions and Risks*, *4*(2), 5-15. [Google Scholar] [CrossRef]

Sineviciene, L., Shkarupa, O., & Sysoyeva, L. (2018). Socio-economic and Political Channels for Promoting Innovation as a Basis for Increasing the Economic Security of the State: Comparison of Ukraine and the Countries of the European Union. *SocioEconomic Challenges, 2(2)*, 81-93. [Google Scholar] [CrossRef]

The World bank. [Link]

Vasilyeva, T., Bagmet, K., Bilan, S., & Seliga, R. (2020). Institutional development gap in the social sector: cross-country analysis. *Economics and Sociology, 13(1)*, 271- 294. [Google Scholar] [CrossRef]

Vasilyeva, T., Lyeonov, S., Adamičková, I., & Bagmet, K. (2018). Institutional Quality of Social Sector: the Essence and Measurements. *Economics and Sociology, 11(2)*, 248- 262. [Google Scholar] [CrossRef]

Vovchak, O. D., Senyshch, P. M., & Melnyk, T. V. (2019). «Purging» of the banking system: impacton the key performance indicators of banks. Financial and credit activity: problems of theory and practice, 1(28), 16-25. [Google Scholar] [CrossRef]

Zakutnia, A. O., & Hayriyan, A. (2017). Transparency as competitive advantage of innovation driven companies. *Business Ethics and Leadership, 1(1)*, 46-54. [Google Scholar] [CrossRef]

Мірдамед Мірсадиг Садигов огли, *д.е.н., проф., Азербайджанський державний економічний університет, Азербайджан*

Державний фінансовий менеджмент як основа інноваційного розвитку: порівняльний аналіз за країнами

Ключовим елементом забезпечення ефективної державної діяльності є управління державними фінансовими ресурсами та координація його фінансових потоків. З огляду на стрімкі темпи розвитку інноваційних технологій та формування курсу розвитку країн на глобальну цифровізацію, існує потреба вивчити взаємозв'язок між рівнем інноваційного розвитку країни та її державним фінансовим менеджментом. У цій статті узагальнено аргументи та контраргументи в рамках наукової дискусії щодо місця та перспектив участі держави у формуванні основи для інноваційного розвитку. Основна мета дослідження - підтвердити гіпотезу про функціональні зв'язки між основними складовими бюджетних ресурсів та рівнем інноваційного розвитку країни. У зв'язку з цим масив вхідних даних представлений у вигляді дев'яти незалежних змінних (регресорів), чотири з яких позначають окремі статті доходів бюджету, а п'ять - видатків та двох залежних змінних (регресантів), які визначають рівень інноваційного розвитку країни. Дослідження впливу державних фінансових ресурсів на рівень інноваційного розвитку країни у статті проводиться в такій логічній послідовності: формування масиву вхідних даних; формалізація функціональних зв'язків між змінними шляхом побудови двох панельних багатофакторних регресійних моделей із випадковими ефектами та інтерпретації отриманих результатів. Дев'ять країн СНД та їх найближчі сусіди були обрані об'єктом дослідження на період з 2011 по 2018 рік. Дослідження емпірично підтверджує вищезазначену гіпотезу, про що свідчать наступні виявлені залежності. Рівень інноваційного розвитку (представлений індексом інновацій) залежить від змін у структурі державного бюджету, зокрема прямо пропорційно до оплати праці найманих працівників та обернено пропорційно до загальних доходів та інших витрат. У той же час зміна видатків на дослідження та розробки в країні прямо пропорційна статтям компенсація найманим працівникам та субсидія та інші трансферти, а також обернено пропорційна статті податкових надходжень та витрат. Результати дослідження можуть бути корисними для державних органів, які забезпечують управління державними фінансами та прагнуть оптимізувати діяльність для підтримки інноваційного розвитку країни.

Ключові слова: державне фінансове управління, державні витрати, державні доходи, інноваційний розвиток, країни СНД, регресійний аналіз.

Manuscript received: 07.07.2020