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Economic Effectiveness and Forecasting of Scientific Activity in Azerbaijan

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Abstract

In the conditions of increasing international competition, sustainable development of the economy is considered to be one of the priority areas of scientific activities in the country. Since science and high technologies are the fundamental basis of innovative development, the strengthening of scientific, technical, and innovative potential for countries is considered as the goal of economic policy. In this context, the ability to achieve achievements related to scientific activity and to implement the obtained results becomes one of the factors that ensure the competitiveness of both the economy and fields and subjects in the global competitive environment. The effectiveness of scientific activity directly depends on the funding of research and development. The comparison of costs and results is closely related to the consideration of different time intervals between financing and the achievement of commercial results. Therefore, investments related to the commercialization of science appear as investments in the future. Thus, the application of the results of scientific activity to production, being considered an important factor of production intensification, ensures the increase of labor productivity, the reduction of production costs, and the improvement of the efficiency of capital investments. These, in turn, are the main conditions for the effectiveness of the integration of science and production. In the research, the effectiveness of scientific activity, the factors affecting it, the possibilities of expanding the application of scientific activity to production, and the forecast indicators of the volume of scientific and technical works shortly are determined.

Keywords: *Research, Effective, Organization, Risk, Forecast.*

INTRODUCTION

Due to the increase in the world population's need for food products, more productivity is required in the production sphere (Amrahov V.T. et al., 2023), currently the basis of economic development is directed towards science. The reliable and stable position of countries in the global competition is related to the formation of the economy based on science and knowledge. From the 19th century, technology and science began to integrate more widely. As a result, science played a fundamental role in the faster achievement of the goals of countries that chose the path of innovative economic progress by developing technologies through improvement measures. The application of science to the economy manifests itself directly in innovative products. In this regard, by applying the economic and scientific-technical innovations occurring in the world to production areas, countries integrate into the global innovative economy. (Amrahov V.T. et al., 2022). Here, not only the products created thanks to innovations, but also the achievement of economic efficiency as a result of the use of innovative techniques is the main condition. (Amrahov V.T., 2014).

Although the use of techniques and new types of equipment reduces the need for a live workforce (Mirzazadeh N., 2022), as a result, innovative ideas are needed in the economy to meet the increasing demand day by day (Arsky A.A., 2018). The number of innovative products obtained as a result of the application of scientific activity to the economy includes more digital products. The main difference between the production of digital outputs and the production of traditional outputs is that the basis of the creation of these outputs is not money, but information capital. Therefore, creating a favorable environment for the development and implementation of innovative ideas, that is, the creation of an innovative ecosystem is considered one of the important issues.

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THEORETICAL FRAMEWORK

Examining the question of whether every scientific research or innovative product is economically effective shows that not all of the conducted research leads to effective results in the economy, for this the nature of the conducted research and how it will contribute to the economy is very important (Amrahov V., 2020). Sometimes the conducted research is very expensive from a financial point of view, the costs incurred for the production of a new type of product or for the new technology to be introduced and the services to be created exceed the economic benefit to be obtained from them. As a result, it weakens the initiative to invest in those products and services. In addition, it is considered more appropriate to focus scientific research on the solution of existing problems in the economy and to ensure development in these directions. Adapting the results of the conducted research to the relevant production area, the range of its effectiveness in that area, and evaluating the current conditions helps to measure the efficiency of the results to be obtained in advance. Y. Schumpeter focuses more on the efficiency of innovation and emphasizes that its creation leads to success and economic profit for entrepreneurs. (https://businessjargons.com/schumpeters-innovation-theory-of-profit.html). He divided the innovation into two types: the first category - reducing the cost of production; the second category - innovations that increase the demand for the product. After Y. Schumpeter's ideas, some scientists began to pay more attention to the relationship between science and economic growth. Adam Smith emphasized the importance of technological improvements in his "Wealth of Nations" (Diamond, Arthur M.Jr., 2008). Kenneth Arrow became one of the main scholars who supported the ideology of Adam Smith for the next period. Thus, the economics of science has become one of the important terms because it links technology and the behavior of scientists. Michael Polanyi described the innovative economy as an efficient market of scientific ideas (Polanyi M., 1962). Economic doctrine generally considers the relationship between utility and costs. A section on research examines the relationship between costs and utility to reduce potential errors in our estimates. Its main problem is getting the most valuable addition to our abilities by spending a certain amount of money, time, and energy. Nikolay Chinakal emphasized the impact of scientific activity on the economy that scientific research becomes effective when these studies are evaluated according to their economic potential and the optimal use of the obtained results (Chinakal N., 1970).

Thus, it is impossible to claim progress in economics without scientific contributions. Therefore, today, countries are mainly oriented towards investing in the scientific direction. Thanks to science, companies can create new products and become innovative companies in the market. As a result, stagnant firms come up with innovative ideas on the spot. At the same time, innovation policy is constantly updated and improved by countries. This policy combines both global competitiveness and prosperity of countries through innovation as well. One of the key issues in improving innovation-based growth is to focus on human capital in addition to R&D (Francis D., 2000).

METHODOLOGY

Science, being one of the main areas of the economy, is the main factor in accelerating socio-economic development. By ensuring the development of science, the evaluation and forecasting of indicators characterizing its efficiency is of great importance. One of the methods is "The deterministic and the stochastic model" (Bruckner E., Ebeling W., Scharnhorst A., 1990). Using the data of the State Statistics Committee of the Republic of Azerbaijan for 2013-2022, we can determine the number of staff engaged in research and work with "The deterministic and the stochastic model", as well as the dynamics of change in their number - increase and decrease. The number of researchers is one of the most important indicators affecting the volume of scientific and technical work (Amrahov V.T. et al., 2023) and the possibility of them moving away from science is constantly in the spotlight. It is possible to determine the risk of staff engaged in research and work leaving scientific activity by using the "Fisher-Eigen-Schuster model" (Sterman J.D., 1985). The effect of internal costs on research and development is one of the important factors in the implementation of scientific and technical work (Small H., Sweeney E., Greenlee E., 1985). The significance is demonstrated in our analysis by calculating the annual internal expenditures per researcher. In the article, a formula derived from the linear dependence function (Malikov T.G., 2006) is used to anticipate the volume of scientific and technical works in the years 2023–2032. The number of organizations conducting research and work, the cost of the basic resources

required for them, and the number of businesses implementing the program of training researchers are among the primary factors that influence the volume of scientific and technical works in addition to the indicators already mentioned. Based on all these indicators, using Microsoft Excel software, we can build a regression model formed by the influence of auxiliary factors X1, X2, X3,..., Xn on the main factor Y. As a result, Y= a0 a1x1 a2x2 .....+ the amxm+ ε model, we can determine the possible indicators of the volume of scientific and technical works in 2013-2022 and the forecast for 2023-2032 based on those indicators (Fedorova E.A. 2012).

CONCLUSIONS AND DISCUSSION

Eliminating the dependence of the country's economy on the impact of globalization processes can be ensured by the development of science-intensive fields that can create a foundation for a competitive and sustainable economy. The operational characteristics of science-intensive fields require effective communication of the problems of personnel training, conducting scientific research, and commercialization of the results of intellectual activity. The operational characteristics of science-intensive fields require effective communication of the problems of personnel training, conducting scientific research, and commercialization of the results of intellectual activity. Supporting innovations and commercialization of intellectual property is one of the special directions in the state policy. In particular, the implementation of state programs for the development of innovation activity in scientific structures maintains its relevance in the current conditions. In this framework, it is required to expand the activities aimed at the development of science, to obtain new information in the mentioned fields, and to expand the integration in the form and content that allows for the interaction that occurs in connection with the application of science to the economy. Activities aimed at developing science allow controlling its functionality and dynamics. In this regard, the theoretical and methodological aspects of assessing the level of development of various fields of science based on the economic parameters of scientific activity are of particular importance.

The main economic parameters for the evaluation of scientific activity, including scientific research, refer to scientific work, i.e. economic efficiency indicators, the results of which can be applied in practice and are compared with the basic state of the system, respectively.

Another direction is related to the consideration of the effects of the results realized in related fields and certain levels of markets when evaluating the main economic parameters of scientific research. Thus, creating prerequisites for scientific and technological development and finding alternative ways to solve existing problems have a fundamental role in realizing the set goals.

Scientific research is a scientific activity based on a systematic analysis of the research object, obtaining new information, presenting them in a form and content that allows for further interaction with the research object. In order to evaluate the scientific activity, it is important to first determine the factors affecting its volume. According to Aliyev R. (2016), these elements are crucial for enhancing research's functionality and managing its dynamics. From this point of view, determining the factors affecting the volume of scientific and technical work, quantitatively evaluating their impact remains relevant as one of the important issues. The practical application of the researched scientific works and their positive results compared to the current situation reflect the economic effectiveness of scientific activity. It is possible to express this in the rational and irrational values of the coefficient as an indicator of the economic efficiency of the object after the implementation of scientific development (Shailieva M.M., 2020).

$$\frac{P_{new}}{P_{existing}} > 1 \qquad \frac{P_{new}}{P_{existing}} \leq 1$$

The economic efficiency of scientific activity is affected by cost reduction and, at the same time, setting a higher price for a new product or service. The impact of size and the synergistic effects that are realized at various market levels (international, regional, national, etc.) should be taken into account when evaluating scientific research. The primary elements influencing the quantity of scientific and technical work are the number of researchers, the number of institutions that carry out their training programs, and the number of organizations

that work and conduct research. Examining the quantity of scientific and technical publications as well as the dynamics of the indicators affecting it is crucial from this angle.

Table 1. The volume of scientific-technical works and the dynamics of indicators affecting it.

Years	The volume of scientific-technical works thousand manats	The number of staff engaged in research and work, person	Basic funds used in research and development, million manats	Domestic expenses for research and development, million manats	Number of institutions implementing a researcher training program	Number of research and development organizations
2013	132089.1	22358	107.2	122.0	179	140
2014	134989.6	23329	122.2	123.8	172	145
2015	116585.1	23093	114.2	120.9	189	141
2016	118565.0	22527	129.5	124.7	187	135
2017	114783.9	20580	157.4	129.9	205	137
2018	135145.2	20179	149.1	147.5	208	133
2019	152601.0	20790	162.8	163.9	209	132
2020	151179.9	20522	159.5	162.5	206	127
2021	189910.5	19754	142.2	194.2	207	134
2022	181841.5	19875	116.1	202.7	207	131

Source: Official data of the State Statistics Committee of the Republic of Azerbaijan (https://www.stat.gov.az/).

One of the main indicators characterizing the development of science is the number of researchers. According to the deterministic and the stochastic model, we can determine the changing dynamics of researchers during different periods:

$$\frac{dN_r}{dt} = R_{fr} - R_{br}$$

N_r-the number of researchers in the current period;

dt-the next five years reflecting the research.

Table 2. The ratio of increase and decrease in the number of scientific researchers.

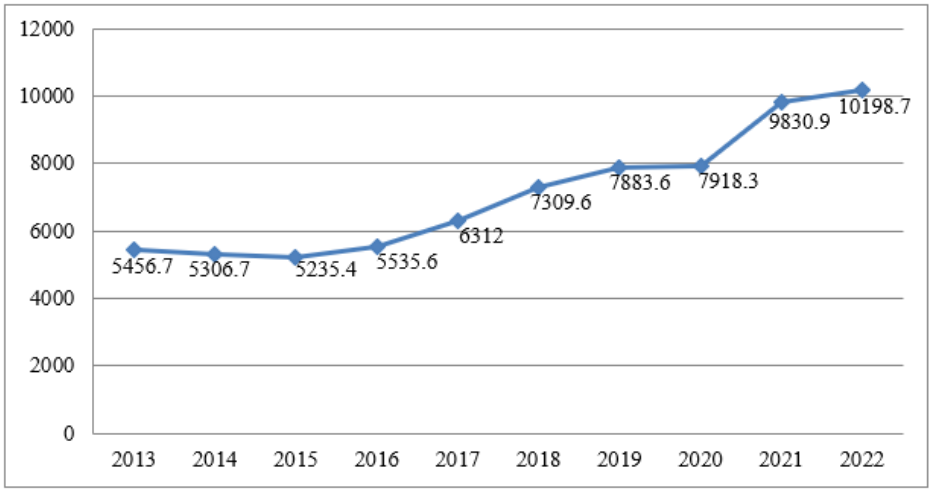
$\frac{20580}{5} = 20580 - 22358$	4116 = -1778
$\frac{19875}{5} = 19875 - 20179$	3975 = -304

Source: The table was prepared by the authors.

According to the indicators, the first side of the equation reflects the increase in the number of researchers, and the second side reflects its decrease. Table data show that there has been a decline in the number of researchers.

The amount of internal expenses allocated to research and development is one of the main factors reflecting the economic efficiency of scientific activity. It is possible to characterize the amount of internal costs per researcher with the following formula:

$$v_r = V/N_r$$



Graph 1. The dynamics of the amount of internal costs per researcher (thousand manats).

Expressions $v_r \to 0$ and $v_r \to \infty$ are limiting dependencies. The expression $v_r \to \infty$ means that the resource base of science is sufficient to meet the needs of researchers and enable them to work to their maximum potential. In this case, the number of researchers begins to depend not on it, but on other factors. It can be seen from the graph that the values of v_r have been at least $v_r \approx 5$ in the last ten years.

We can express the risk of researchers moving away from scientific activity using the Fisher-Eigen-Schuster model, using the K_{fr}, K_{br} values, which determine the indicators of the number of researchers, the amount of internal costs, and efficiency:

$$K_{fr}N_r \sum_i n_{ri} - K_{br}N_r$$

$K_{fr}=\alpha_{fr}(1-\exp(-ß_r v_r/v_{min}))$.

$K_{br}=\alpha_{br}\exp(-ß_r v_r/v_{min})$.

v_r- the cost per researcher in the current activity period;

v_{min}- the lowest cost per researcher for each five-year period;

exp- represents the period of operation.

By calculating the constant values, we get the values in the table for K_{fr} and K_{br}:

Table 3. Constant values of αfr, αbr and ßr values.

α_{fr}	1.4E-12
α_{br}	1.9E-02
$ß_r$	2.0

Source: The table was prepared by the authors.

Table 4. Values of Kfr and Kbr values for different periods.

K_{fr}=1.4E-12(1-5(-2.0×129.9/120.9))=1.4E-144	K_{br}=1.9E-2×5(-2.0×129.9/120.9))= 1.9E+22
K_{fr}=1.4E-12(1-5(-2.0×202.7/147.5))=1.4E-180	K_{br}=1.9E-2×5(-2.0×202.7/147.5))=1.9E+28

Source: The table was prepared by the authors.

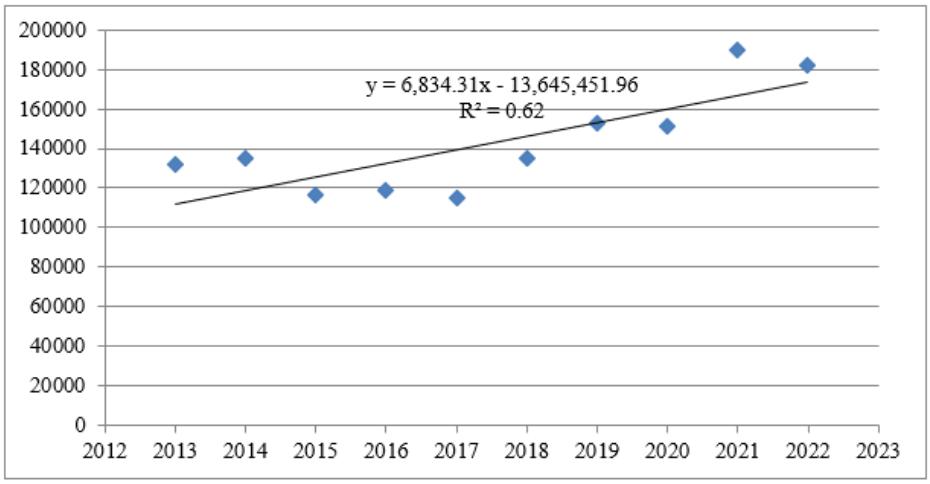
$$K_{fr}N_r \sum_i n_{ri} - K_{br}N_r$$

(1.4E-144)×20580×111887-(1.9E+22)×20580= -39430E-452760

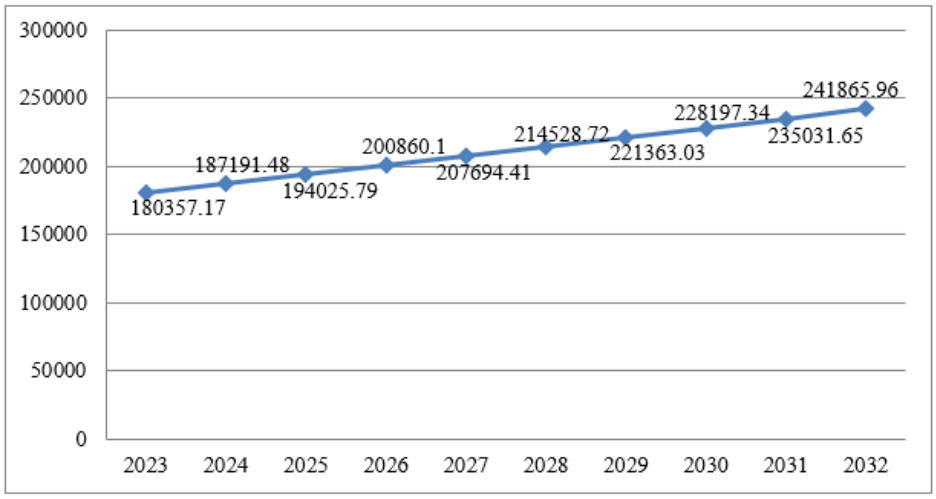
(1.4E-180)×19875×101120-(1.9E+28)×19875== -38119.7E-556500

Thus, based on the indicators, we can note that in the first five-year period, i.e. in 2013-2017, the risk of researchers leaving scientific activity was low, and in the next five-year period, it increased.

Let's take a look at the graphic description of the volume of scientific and technical works using the trend line. With the equation y=6834.31x-13645451.96 obtained from the linear dependence, it is possible to predict the volume of scientific and technical works for the following years:



Graph 2. Dynamics of linear dependence of the volume of scientific and technical works.



Graph 3. Forecasted indicators of volume of scientific-technical works.

As a result of predicting the volume of scientific-technical works with the equation obtained from the linear dependence function, it becomes clear that the dynamics will increase by 34.1% in the next ten years (graph 3).

Now let's calculate the forecast indicators of scientific and technical work for 2023-2032 based on the data of 2013-2022 based on the regression model using Excel software. Initially, the potential amount of scientific and technical work will depend on several factors, including the number of researchers who influence this volume,

the price of basic resources, the amount of internal costs associated with them, the number of institutions running the program to train researchers, the number of organizations conducting research and work, and the upcoming years.

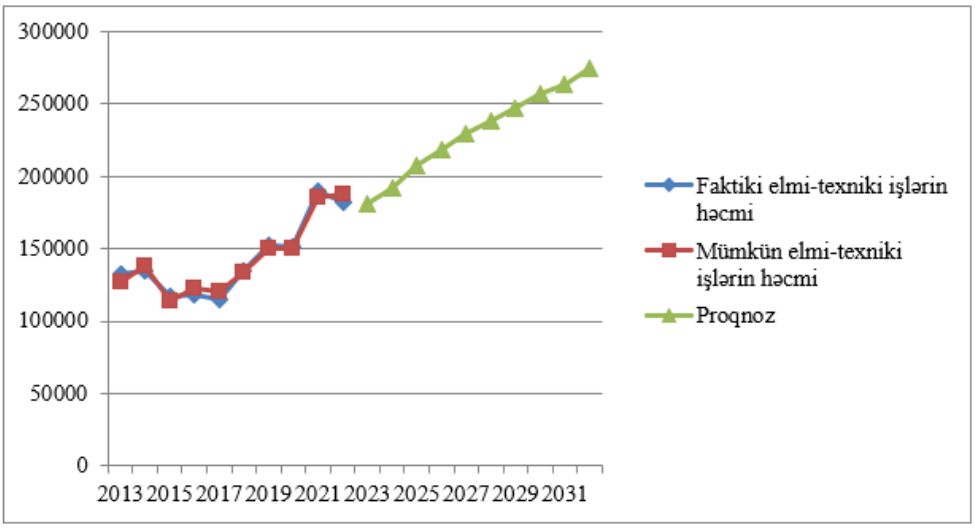
$$Y=172098.3866-2.856155171X_1+183.3164758X_2+1072.601547X_3-1077.726843X_4+433.4732798X_5$$

Based on the established regression model, the correlation coefficient $r = \sqrt{R^2} = \sqrt{0.944} = 0.97$ between the indicators for the studied period is r=0.9-0.99 on the Cheddock scale (Yavuz F., 2001), according to the number of staff engaged in research and development in the scope of scientific and technical works in the Republic of Azerbaijan, the main resources used for them there is a very high correlation dependence between the value, the amount of internal costs, the number of enterprises and organizations. R-square = 0.9751 indicates that the approximation is quite high. The coefficient of determination R^2= 0.9751 means that 97.5% of the variance of the corresponding regression equation is explained by the outcome indicators, and 2.5% is explained by the influence of other factors. The high coefficient of determination indicates that the regression equation expresses the initial data better and that the greater part of the result factor (97.5%) is explained by the factors included in the model. Since the Significance F~ is 0.002642279, the regression model is valid under the condition of $p < 0.05$ (Duignan J., 2016).

Table 5. Possible and predicted indicators of researchers based on the regression model.

Years	The volume of actual scientific and technical works, thousand manats	The volume of possible scientific and technical works, thousand manats	Years	Predictable volume of scientific and technical works, thousand manats
2013	132089.1	126522.5	**2023**	181314.6
2014	134989.6	138141.1	**2024**	192400.4
2015	116585.1	114182.8	**2025**	207366
2016	118565.0	122234.6	**2026**	218311.7
2017	114783.9	119955.5	**2027**	229570.5
2018	135145.2	133490	**2028**	238320.1
2019	152601.0	150335.8	**2029**	246870.9
2020	151179.9	150060.5	**2030**	256345.7
2021	189910.5	185040.7	**2031**	263101.3
2022	181841.5	187727.2	**2032**	274801.4

Source: The table was prepared by the authors.



Graph 4. Graphic representation of possible and predicted indicators of scientific and technical work based on the regression model.

The dynamics of the volume of scientific and technical works shows that this indicator increased by 37.7% in the years 2013-2022, when the comparison was made. It is possible to increase the volume of scientific and technical works by 48.4% with the effect of the above-mentioned factors on the regression model. It can be predicted that the indicator will increase by 51.6% for the next years, i.e. 2023-2032 (table 5).

What has been mentioned shows that the creation of necessary conditions for scientific activities aimed at the production of innovations necessary for the development of leading areas of the economy is one of the necessary issues. Accepting innovative developments also depends on the level of readiness to use them. Therefore, in addition to the number of researchers engaged in scientific activity, attention should be paid to purpo/sefully improving the quality of their work, thus strengthening the potential of intellectual resources. These can expand the platform of intellectual work by creating a basis for acquiring new knowledge.

RESULT

Based on the research, it can be noted that although the economic efficiency of scientific activity is mainly characterized by the volume of scientific and technical work, other indicators - the number of researchers, the cost of basic resources, the amount of internal costs incurred for them, the number of enterprises implementing the program of training researchers, instead of research and work the number of performing organizations has an important role in this regard and is manifested by a significant impact on the volume of scientific and technical works. The examination of these issues shows that a positive trend is observed in the years of the analysis. The risk of researchers moving away from scientific activity is one of the main factors determining the economic effectiveness of scientific activity. It is possible to evaluate the result of this indicator positively in recent years. Therefore, it is important to consider each of these indicators when determining the economic efficiency of scientific activity.

Thus, we can say that it is impossible to achieve the improvement of the quality and efficiency of scientific research without actively involving researchers as much as possible in scientific activity, without developing their entrepreneurial ability, without taking into account the risk factors, as well as without increasing the volume of investments in the scientific and innovative development of the economy. From this point of view, enterprises that successfully implement innovative activities are of special importance. Thus, such enterprises are ahead of others in the commercialization of the results of their intellectual activities. In this regard, there is a need to develop concepts for efficient utilization of scientific potential.

The relationship between scientific activity and economic development determined as a result of the research emphasizes the importance of implementing integration measures in this direction. In this context, the formation of advanced information systems to provide and increase analytical access to necessary information can contribute to increasing the efficiency of scientific activity.

Thus, the main result of the study is the formation of an integrated, systematic approach to increasing the efficiency of scientific activity, which allows for determining measures aimed at ensuring the sustainable development of the economy as a whole.

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Conflict of Interest

The authors declare that there was no conflict of interest.

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REFERENCES

Amrahov V.T., Mirzazadeh N.G., Taghiyev M.Z., Muradov R.J., Hamidov A.V., Karimova M.H. (2023). Modeling and forecasting of production an agricultural. Journal of law and sustainable development v.11, n.7. https://ojs.journalsdg.org/jlss/article/view/625/547

Amrahov V.T., Karimov F.J., Karimova M.H. (2022). Development Opportunities Of Material And Technical Resource Potential In The Agricultural Sector. European Journal of Economics and Management Sciences. 1, 62-68.

https://cyberleninka.ru/article/n/development-opportunities-of-material-and-technical-resource-potential-in-the-agricultural-sector

Amrahov V.T. (2014). Improvement of the economic mechanism of the structural policy of the state in the agricultural market. Life Science Journal. 11(10s). https://www.researchgate.net/publication/296506835_Improvement_of_the_economic_mechanism_of_the_structural_policy_of_the_state_in_the_agricultural_market

Arsky A.A. (2018). Import substitution as an aspect of the development of Joseph Schumpeter's theory of innovation // Journal of Management Research.. No. 10. https://auspublishers.com.au/temp/4972f72033b9ea0d187b60324c5f391a.pdf

Amrahov V.T. (2020). "Assessment of the level of use of production potential in the agricultural sector." Agricultural economics, №2 (32), 36. April. https://agroeconomics.az/pdf/2.pdf

Amrahov V.T., Hajiyeva S.I., Mirzazadeh N.G., Taghiyeva N.I., Karimova M.H., Karimov F.J. (2023). Efficiency Of Using Human Resources In The Agricultural Field: Main Criterias And Priorities. Tec Empresarial Journal Vol. 18 No. 2. https://revistas.tecac.cr/index.php/tec_empresarial/article/pdf/2023/2023.pdf

Aliyev R. (2016). Methodology of performing scientific work. Resources for the successful preparation of scientific projects, diplomas and dissertations. Baku: "Twilight Publications" publishing house. https://anl.az/el/Kitab/2017/11/cd/2016-2204.pdf

Bruckner E., Ebeling W., Scharnhorst A. (1990). The application of evolution models in scientometrics//Scientometrics, vol. 18, 1-2. https://www.researchgate.net/publication/242915712_The_application_of_evolution_models_in_scientometrics

Chinakal N. (1970). Several criteria for evaluating the results of scientific research. Novosibirsk.

Diamond, Arthur M. Jr. (2008). Economics of Science. Economics Faculty Publications. 36. https://digitalcommons.unomaha.edu/econrealestatefacpub/36/

Frantzen D. (2000). R&D, Human Capital and International Technology Spillovers: A Cross-country Analysis /Scand. J of Economics 102(1), 57-75. https://www.jstor.org/stable/3440705

Fedorova E.A. (2012). "The use of econometric methods in assessing the impact of external factors on the capitalization of companies in the electric power industry". Journal: Audit and financial analysis, №3, pp. 211-216. https://auditfin.com/fin/2012/3/2012_III_03_15.pdf

Jam, F. A., Akhtar, S., Haq, I. U., Ahmad-U-Rehman, M., & Hijazi, S. T. (2010). Impact of leader behavior on employee job stress: evidence from Pakistan. European Journal of Economics, Finance and Administrative Sciences, (21), 172-179.

John Duignan. (2016). A Dictionary of Business Research Methods. Oxford University Press. https://www.oxfordreference.com/display/10.1093/acref/9780191792236.001.0001/acref-9780191792236

Jam, F. A., Haq, I. U., & Fatima, T. (2012). Phychological contract and job outcomes: Mediating role of affective commitment. Journal of Educational and Social Research, 2(4), 79-79.

Mirzazadeh N. (2022). Directions for increasing employment in the agricultural sector. Scientific Collection «InterConf». 135, 23-27. 12/8. https://archive.interconf.center/index.php/conference-proceeding/article/view/1815

Malikov T.G. (2006). Mathematical analysis of observational results. - Baku, "Science", 308 p.

Polanyi M. (1962). The Republic of science. Minerva 1, 54–73. https://www.jstor.org/stable/41821153

Sarwat, N., Ali, R., & Khan, T. I. (2021). Cognitive Job Demands, Presenteeism and Procrastination: The Moderating Role of Psychological Capital. sjesr, 4(1), 193-203.

Sterman J.D. (1985). The Growth of Knowledge: Testing a Theory of Scientific Revolutions with a Formal Model, Technological Forecasting and Social Change, 28, 93-122. https://www.jstor.org/stable/2640334

Small H., Sweeney E., Greenlee E. (1985). Clustering the Science Citation Index Using Co-Citations. II. Mapping Science, Scientometrics, 8321-340. http://l4w.info/Diplomarbeit/Material/H.%20Small,%20E.%20Sweeney,%20E.%20Greenlee%20Clustering%20the%20Science%20Citation%20Index%20using%20co-citations.%20II.%20Mapping%20science.%20In%20Scientometrics,%20Bd.%208,%20Nr.%205-6,%201985,%20S.%20321-340.pdf

Shailieva M.M. (2020). Marketing aspects of the effectiveness of a student startup // Marketing and Logistics.. No. 5 (31). https://marklog.ru/marketingovye-aspekty-jeffektivnosti-studencheskogo-startapa/

Shailieva M.M. (2021). Transformation of regional commodity policy // Marketing and logistics.. No. 4 (36). https://marklog.ru/wp-content/uploads/2021/08/%D0%9C%D0%98%D0%9B-436-2021.pdf

Yavuz F. (2001). Econometrics Theory and Practice. Erzurum.199 p. https://avesis.atauni.edu.tr/resume/lessonmaterieldownload/fyavuz?key=9aa49add-38cd-4f71-958c-42797d852906

https://businessjargons.com/schumpeters-innovation-theory-of-profit.html

https://www.stat.gov.az/