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FINANCING OF SCIENTIFIC RESEARCHES IN UKRAINE AND EU

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The article deals with the analysis of volumes and sources of scientific researches financing in Ukraine and EU. The worldwide countries-leaders in financing and support of development of science and technology are determined in the article. The main existing Ukrainian and European funds of scientific researches financing are systematized. The possible mechanisms of scientific researches stimulation in Ukraine are proposed.

Ensuring of stable economical growth is impossible first of all without support and stimulation of scientific and innovative activity in the country with the purpose of generation and creation of innovative, competitive ideas and products. It is necessary to note that specifically the results of scientific and technological activity are one of the instruments determining the rate of economical development of the country. The contemporary conditions of functioning and instability of market economy cause limitation and lack of financial resources. Therefore, the search and implementation of modern economical instruments of stimulation and support of scientific and innovative activity is the hot question.

It should be marked that the list of publications of Ukrainian scientists is dedicated to studying of the problems of financing, stimulation, and development of scientific researches in Ukraine, namely S.V. Kovalchuk, O.V. Krasovskaya, N.S. Popovich, A.Y. Savenko etc.

The aim of this article is to study, analyze, and compare the main directions and the scope of financial scientific activity in Ukraine and EU. Within the framework of the research the potential mechanisms of scientific activity stimulation in Ukraine are determined, including the level of Higher Education Institute.

It must be said that one of the sources of scientific activity financing in Ukraine is the state as the financing volumes are included in the budget of the country. Thus, the main directions of state appropriations for innovative and scientific activity are:

- fundamental researches (for the accounts of the grants of the Government fund of fundamental researches as well);
- applied researches and developments;
- government target scientific and scientific-and-technical programs, the scientific parts of government target programs as well;
- the development of the most important and the newest technologies under the condition of the government order;
- the programs and the projects in the field of international scientific and scientific-and-technical cooperation;
- financial support of the scientific infrastructure development and renewal of science and technology base;
- other directions of financial support of scientific and technical activity.

As per the statistic data for 2014 the financing of innovative, scientific and technical activity has amounted 10320,33 million UAH, for the account of the state budget funds – 4057,03 million UAH. It should be emphasized that in absolute terms the increment of growth of scientific activity financing in Ukraine is observed. Thus, in 2003 the financing amounted 3319,8 million UAH, in 2008 – 8538,9 million UAH, and in 2012 – 11252,7 million UAH. At that, the relative density of government budget in the total sum of financing amounted 39,3%, the relative density of the orders from foreign countries – 19,8%, the relative density of the Ukrainian customers' volume – 20,8%, and the relative density of own financing – 18,7% [1, 2].

Analyzing the dynamics of financing sources for 2005–2014 years, it is necessary to mark that the relative density of foreign financing of scientific activity is decreasing, what firstly has been caused by the political and economical instability in the country. In addition, the gradual increase of the relative density of the volume of scientific activity financing for own account (Table) is observed. So, in 2005 only 6,6% was financed for own account, in 2011 – 38,8%, and in 2014 – 18,7% [1, 2].

Table – The dynamics of the financing structure of scientific and technical activity in Ukraine for 2005–2014 years, %

	State budget	Customers		Own account	Other sources
		Ukrainian	Foreign		
2005	33,2%	32,6%	24,4%	6,6%	3,2%
2010	41,4%	21,8%	25,7%	9,7%	1,4%
2011	40,5%	23,8%	25,8%	38,8%	1,1%
2012	44,9%	23,3%	19,4%	10,6%	1,8%
2013	42,9%	20,7%	21,5%	13,1%	1,7%
2014	39,3%	20,8%	19,8%	18,7%	1,4%

It should be stressed that in advanced countries every year the volumes of financing are increasing. Thus, the relative density of expenses on scientific researches in Gross Domestic Product (GDP) in the countries of EU is 2,01%. The leaders are the following European countries: Finland – 3,31%, Sweden – 3,3%, Denmark – 3,06%, Germany – 2,85%, Austria – 2,81%, France – 2,3%, Belgium – 2,28%. In its turn England spends 1,72% from GDP on science and technology [2].

As can be seen from the figure 1, China greatly increases the volumes of science and technology financing, so, in 2003 the share of expenses in GDP amounted 1,13%, and in 2012–1,98%. Japan stays the worldwide leader, spending in average 3,5% from GDP on the development of science and technology. It is required to note that every year the USA uniformly increase the percentage of deductions for the development of science and technology, the increase ranges from 0,15% to 0,2%. Therefore, in 2003 the USA deducted 2,55% from GDP, and 2,81% – in 2013. So, for 10 years the increment of growth amounted 0,26% [1, 3, 5, 8].

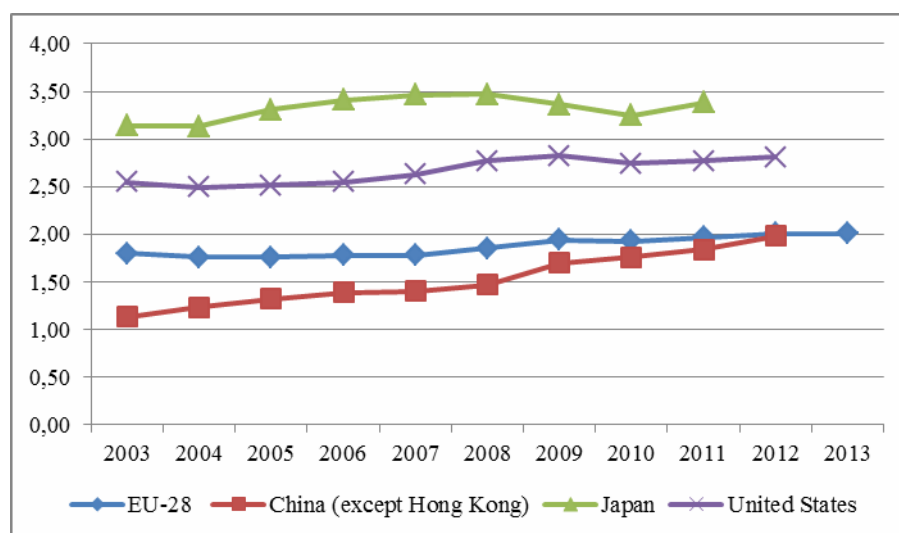


Fig. 1. The comparative analysis of the share of science financing and development in GDP in the world for 2003–2013 years, %

Unfortunately, in Ukraine the relative density of analogical expenses decreases every year. Thus, in 2012 the relative density of expenses on scientific and scientific-and-technical works in GDP amounted 0,8%, and in 2014 – 0,7%, at the same time in 2003 the share of expenses in GDP was 1,24% (Figure 2).

According to the statistic data [1, 2] for 2014 in Ukraine 1885 grants were won by the Ukrainian scientists from the international funds, 1193 grants were individual ones, and 692 grants were collective ones. In general, around 4500 of scientists were involved in performing of the grants

Thus, the grant programs of European Union, namely Erasmus+, Horizon 2020, spread most of all.

In August of 2015 Ukraine made a contract with EU concerning the participation in the program Horizon 2020, the purpose of which is to support and encourage the scientific researches. The budget of this framework program, the largest one for the whole history of European Union, is 80 milliards euro. Just in almost 5 months after the beginning of participation in Horizon 2020 the Ukrainian scientists managed to win more than 60 projects for the total sum of money almost 7,4 million euro. One third part of won grants is accounted for by

institutes of the National Academy of Sciences of Ukraine, other projects-winners were represented by the universities and the enterprises of Small and Medium Enterprise [6].

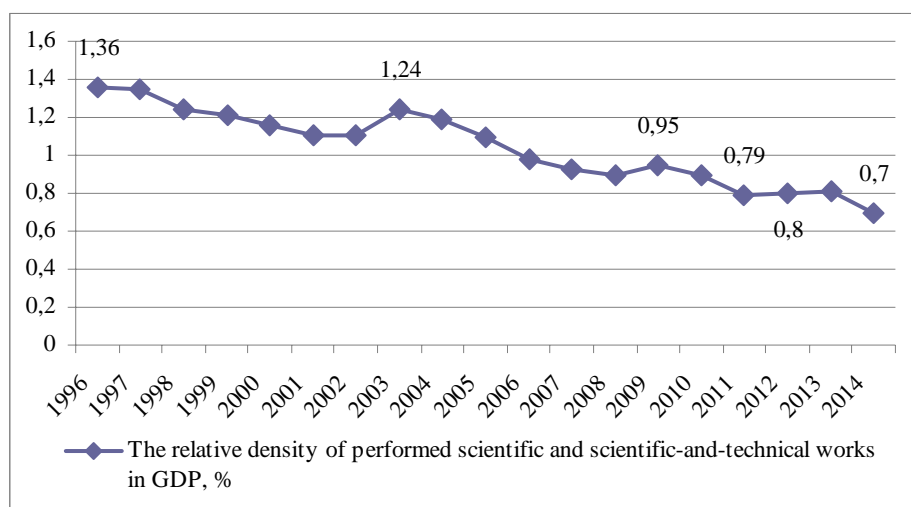


Fig. 2. The relative density of performed scientific and scientific-and-technical works in GDP for 1996-2014 years, %

The development HAH ERA-PLANET ("The European Network For Observing Our Changing Planet") became the largest-scale and the most expensive project, represented by the Ukrainian scientists. The unique project proposes to create the consolidated European research space in the sphere of observing the Earth. The European Union has appropriated 400 thousands euro for the working towards this direction [6].

Among the American program there is USAID. It should be noted that for 2015 in Ukraine the list of cooperative grant programs with other countries is working, namely:

1. The program of scientific cooperation between the countries of Eastern Europe and Switzerland "SCOPES".
2. The program of collective projects of fundamental researches within the framework of German-Ukrainian academic cooperation between the German research society (DPG) and the Government Fund of fundamental researches.
3. The program of collective Ukrainian-Latvian scientific and research projects.
4. The program of collective Ukrainian-French scientific and research projects.
5. The program of collective Ukrainian-Belorussian scientific and research projects, etc.

As the experience of foreign countries shows, the grant system of financing of science and scientific developments is the most effective. Under these conditions the spirit of competition is kept, what ensures the development and selection of competitive ideas, which in their turn cause the economical development of the country.

It should be emphasized that relatively wide variety of grant programs does not guarantee the increase of the volumes of financing of scientific activity in Higher Education Institute. First of all the information problem appears, which can be solved through the creation of special Internet websites with actual grant programs within the framework of Higher Education Institute. So, for example in Sumy State University (SumSU) there is a special centre on development of science and technology "The Centre of Scientific and Technical and Economical Information of Sumy State University". The main aim of its functioning is assistance to scientific and technical and innovative activity in the region, implementation of scientific and technical achievements, project and designing developments into the manufacturing, deepening of scientific researches, the spreading of scientific methods of manufacturing management and scientific labour organization, etc. [4, 7].

The next direction of stimulation of Higher Education Institute scientists for the participation in the international grant programs is the creation of internal positions of stimulation. Thus, for instance, it is possible to create "The statement about the rating of internal subdivisions of Higher Education Institute", which will include such indicators as the amount of international grants, including individual ones, and the volumes of their financing. Besides, the mechanism of encouraging for promulgating of results of scientific grants performance, in peer-reviewed scientometrical data bases (Scopus, Web of Science) as well, is the perspective direction.

Therefore, it should be marked that on the level of the state it is required to develop and accept the effective mechanisms of financing and stimulation of scientific activity. First of all it is needed to increase the share of the expenses on the development of science and technology. At the same time it is necessary to improve the state grant system, drawing on the experience of the world leaders. It is also required to develop and implement the local stimulation of scientists for the scientific activity within the framework of Higher Education Institute

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METHODOLOGY OF CONCESSION OBJECTS ANALYSIS FOR THE CONCESSIONAIRE

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The paper presents a methodology of analysis of the concession objects for the concessionaire. Proposed four stages of analysis, examples on the calculation of the net present value of the concession, the index of profitability, internal rate of return (internal rate of return) and payback period of the concession agreement.

An essential condition for the normal functioning of the economy has been always the interaction between public and private sectors. This is due to the fact that the state is never free from their critical functions related to public interest, and the business, there is always a source of economic development. The economy in the last decade has developed a special quality of interaction between the public and private sector, known as public-private partnerships. Progressive world practice shows the increasingly widespread different models of public-private partnerships, which are the most important form of concession. Development of this type of interaction in the Republic of Belarus received increased attention. However, now in economic science is not resolved a number of methodological problems of accounting for concession agreements, there are no methods of analysis concession objects, which adversely affect the formation of an information base for decision-making.

The study propose a methodology for analyzing concession objects, including 4 stages.

Stage 1. We calculate the net present value of the concession.

Consider for example.

Investment in the project is 60 mln. USD. "Price" is equal to 10% of capital. The concession period is 5 years. Rents for years concession period are equal to 35; eleven; 16; 18; 17 million. USD. To determine the net present value of the project.

Decision:

$$NVP = \frac{35}{(1+0,1)^1} + \frac{11}{(1+0,1)^2} + \frac{16}{(1+0,1)^3} + \frac{18}{(1+0,1)^4} + \frac{17}{(1+0,1)^5} - 60 = 75,778 - 60 = 15,778 \text{ mil. USD} \quad (1)$$