

FINANCIAL ISSUES IN HIGHER EDUCATION SECTOR OF UKRAINE UNDER CONDITIONS OF INFORMATION ECONOMY FORMATION

უკრაინის უმაღლესი განათლების სექტორის ფინანსური პრობლემები საინფორმაციო ეკონომიკის ფორმირების კონტექსტში

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ABSTRACT

The article defines the role of higher education sector in modern processes of information economy formation. The author analyzes current tendencies of financing of higher education institutions in Ukraine, with an emphasis on financial aspects of research activity. On the bases of the study of typical models and financing methods of the higher education sector in Ukraine, the author identifies the prospects of finance sources diversification in conditions of both information economy formation and scientific-educational area globalization and internationalization.

Key words: *information economy, higher education sector, higher education institution, diversification of finance sources, fundraising.*

ანოტაცია

სტატიაში განსაზღვრულია საინფორმაციო ეკონომიკის ჩამოყალიბების თანამედროვე პროცესებში უმაღლესი განათლების სექტორის სუბიექტების როლი. ავტორის მიერ გაანალიზებულია უკრაინის უმაღლესი სასწავლებლების ფინანსირების ტენდენციები და აქცენტი გაკეთებულია სამეცნიერო კვლევითი საქმიანობის რეალიზაციის ფინანსურ ასპექტებზე. უკრაინის უმაღლესი განათლების სექტორის ფინანსირების ტიპური მოდელისა და სქემების კვლევის

საფუძველზე განსაზღვრულია ფინანსირების წყაროების დივერსიფიკაციის პერსპექტივები საინფორმაციო ეკონომიკის, გლობალიზაციისა და სამეცნიერო კვლევითი სივრცის ინტერნაციონალიზაციის ფორმირების პროცესში.

საკვანძო სიტყვები: საინფორმაციო ეკონომიკა, უმაღლესი განათლების სექტორი, უმაღლესი სასწავლო დაწესებულება, ფინანსირების წყაროების დივერსიფიკაცია, ფანდრაიზინგი.

Urgency of the research. Ukraine's integration aspirations and vectors are aimed at operational monitoring and adequate reaction to key trends in social and economic development of leading countries. The trend of transition of national economies to functioning on the principles of information, innovation and knowledge-based development is gradually becoming global. In other words, economically developed countries are intensifying the activities on the information economy formation that means the significant increase in non-material production factors importance, the special role among which is given to information, information technology, information and knowledge resources [9; 14].

The concept of information economy is quite close to the category knowledge economy (knowl-

edge-based economy). In modern economic conditions, simple accumulation of knowledge and information is not enough. Relevant is the transformation of information and information resources into a valuable product. In such conditions, the competitiveness requires the economic actors to change their approaches to organization of activities; in particular, the strengthening the science-intensiveness of production process, the implementation of innovations, modern information and communication technologies, and development the effective communication with the sectors able to generate knowledge, information and innovation.

Intensity, speed and tempo of information economy formation processes are determined by the development level, productivity, efficiency of the higher education sector in the country, which is represented by higher educational institutions and research institutes. In modern dynamic conditions the reform of the national economy in general and its segments, spheres, branches is impossible without the permanent improvement of higher education system as a key producer of knowledge, a transformer of knowledge into valuable informational products, a generator and transmitter of innovations into the real sector of the economy through transfer and commercialization. In addition, the modernization of industry and service spheres necessarily requires the highly skilled specialists capable to innovative thinking and acting, innovative projects' initiating and effective implementing [4; 6; 10]. Therefore there is a dual interaction between the information economy and the higher education sector; it also determines the relevance of their unidirectional and coordinated development and research. Ukrainian higher educational system has some problems limiting the information economy formation; particularly, the most problematic are financing aspects (lack of financing, low efficiency of fundraising activities, undeveloped endowment funds, lack of private investments, etc.).

Actual scientific researches and issues analysis. The problems of information society development and information economy formation are the research subject of domestic and foreign scientists: O. Alimov, V. Andrushchenko, D. Bell,

B. Danylyshyn, M. Castells, M.Zgurovsky, J.Masuda, I. Malik, E.Toffler, A. Chukhno, S. Shkarlet, etc. **Uninvestigated parts of general matters defining.** However, despite the achievements of Ukrainian and foreign scientists, the research question of financial aspects of educational and research activities of higher educational institutions and research institutions in Ukraine require in-depth study.

The research objective. The aim of the article is to identify the prospects of diversification of funding sources of the higher education sector under the conditions of the information economy formation.

The statement of basic materials. Current economic, social, political, geopolitical problems in Ukraine cause a number of resource restrictions, in particular financial ones. It is urgent to focus on the importance of financial aspects in providing and maintaining modernization processes in the higher education sector. Firstly, the training of highly skilled specialists, competitive at labor market, whose competence, knowledge and skills meet the employers' demands, requires the provision of universities educational process with proper tools and modern equipment. Secondly, carrying out scientific researches, inventive activities requires the regular updating of specialized equipment for research laboratories; the purchase of facilities and reagents; the access to world information resources and repositories; the publication of research results in world rating scientific journals; participation in foreign conferences, etc. Thirdly, the increase in the productivity of universities' teachers, scientists, and talented students requires the creation of favorable working conditions, suitable wages and wide system of material and moral motivation [3]. Therefore the actual challenges of information economy cause the necessary of improvement of the higher education sector activities, the efficiency of which are largely determined and depend on the amount of funding, the degree of diversification of funding sources, and the use of financial resources.

There are several funding models at higher education sector (depending on the prevailing finance source). Typical for Ukraine is a mixed system that combines public and private funding

of higher education institutions and research institutes. Direct funding of higher education includes three groups of methods:

1) Results-based financing (Denmark, United States of America, Netherlands, Israel, Finland, etc.) – funding amount is depend on the institution’s achievements and results; based on the quality of university’s educational services; the effective use of this method requires high-quality state monitoring and regulation without corruption or any unprofessional behavior of civil servants;

2) Financing on the base of expenditures (Canada, Great Britain, France, Japan, Sweden, Norway, China, etc.) – the method includes three subtypes: linear subtype (budget distribution by groups – for example, labor costs, equipment), programmatic subtype (by cost centers – for example, faculty), and budget by activity type (for example – education and research);

3) Contractual financing (Brazil, Argentina, India) – the method is usually associated with strong state control, instability and difficulties in forecasting funding; further to the above sometimes becomes an anti-stimulus to increase the institution’s efficiency and flexibility [5].

The second classification approach identifies the following groups of methods of higher education state financing:

- Budget financing – on the basis of the previous year’s parameters of institution’s expenditures;
- Normative financing – on the basis of established norms on higher educational institution functioning or by expenditures categories;
- Programmatic financing – on the basis of established target programs with the optimized and purposeful balancing of resources, executive participants, measures and terms of implementation;
- Results-based financing – on the basis of evaluation of the institution’s results achieved during the previous period [7].

The indirect approach in higher education public financing means a change in the priorities for allocating funds – in particularly reorientation from direct funding of higher education institutions to following alternatives:

- Tax privileges;
- Credit privileges, student loans;
- Insurance;
- Student funding (“money follows the student”) – examples: voucher funding, special scholarship, targeted grant support from the state budget for students to cover all or part of their tuition costs [5]

In the conditions of globalization, dynamism, technological, information era, and growing resource constraints domestic higher education institutions and research institutes face two alternative development paths:

- a) keeping the traditional financing schemes and, as a result, the orientation of the activities vectors on rationalization and increasing the efficiency of financial resources use; the path means almost total savings and activity reduction, dismissal of staff, etc.;
- b) diversification of financing sources, fundraising activity activation, and introduction of the modern financial schemes.

The second path is much more suitable for Ukrainian institutions in current trends: on the one hand, the ever-increasing needs of educational institutions for improving the material and technical base, for implementation of modern information and communication technologies, modernization of computer systems, etc.; on the other hand, the limited and lack state funding (mostly – payment of wages to staff, scholarships to students, and also partial coverage of utilities cost) [8-9]. The financing of higher education in Ukraine is increasing (2016 –30,595.9 mln UAH; 2005 – 7,934.1 mln UAH). However, it does not allow to state the sustainable positive trends due to inflationary processes in the country (48.7% in 2015, 12.9% in 2016 [13]).

The economical statistical analysis of the financing relative indicators allows identifying the trend to the reduction of share of expenditures for higher education in the total expenditures of the consolidated budget for education: from 6.6% in 2010 to 4.4% in 2016. In addition, it should be noted that the share of expenditure on higher education in percentage of gross domestic product

Table 1

DYNAMICS OF CONSOLIDATED BUDGET EXPENDITURES FOR HIGHER EDUCATION IN UKRAINE [12]

Year	Total expenditures of consolidated budget, mln UAN	Expenditures, %		Total expenditures of consolidated budget, mln UAN	Expenditures, %	
		of total expenditures	of GDP		of total expenditures	of GDP
		2000		2014		
Total expenditures	48,148.6	100	100.0	523004.8	100.0	100.0
expenditures for education	7,085.5	14.7	4.2	100105.6	19.1	6.4
expenditures for higher education	2,285.5	4.7	1.3	28340.5	5.4	1.8
		2005		2015		
Total expenditures	141,989.5	100.0	100.0	679871.4	100.0	100.0
expenditures for education	26,801.8	18.1	6.1	114193.5	16.8	5.8
expenditures for higher education	7,934.1	5.7	1.8	30981.8	4.6	1.6
		2010		2016		
Total expenditures	37,7842.8	100.0	100.0	701801.3	100.0	100.0
expenditures for education	79,826.0	21.1	7.4	109155.2	15.6	6.6
expenditures for higher education	24,998.4	6.6	2.3	30595.9	4.4	1.9

of the country is increasing: from 1.8% in 2005 to 2.3% in 2010 and 1.9% in 2016 [12] - tabl. 1. The reasons of mentioned above tendencies are: complicated geopolitical situation, military conflicts in the east of Ukraine, economic and political instability, the state budget deficit.

Ukrainian higher education institutions have been regularly faced with a lack of funding due to their strong dependence on state funding and the low diversification of financial sources. Nowadays it is crucial to transfer from historically established, traditional approaches in financing higher education and science to modern methods and sources. At the national level certain steps are being taken in this direction, but unfortunately the measures are often unsystematic, scientifically inadequate, inconsistency to domestic realities. It is also necessary to notice that the effects of reforms in the higher education system could be evaluated only after a certain time period – the lag-time needed to adapt and adjust the subjects of the system to financial innovations, and to establish effective forecasting financing mechanisms under the changing economic, social and political conditions.

In context of the information economy formation the special research interest is concentrated on the issues of R&D funding because of their direct impact on the prospects and effectiveness of

scientific and technological progress, the intensity of inventive and patent activities, the innovative development of the national economy. The issues of R&D activities funding (in particular, in the higher education sector) are the most problematic in Ukraine.

The negative trends in R&D funding in the country look more problematic through the comparative analysis: in 2015 in Ukraine research and development expenditures were 0.55% of GDP, while the EU average level was 2.03%, and particularly: Sweden – 3.26%, Austria – 3.07%, Denmark – 3.03%, Finland – 2.9%, Germany – 2.87% of GDP [2; 11]. Economically developed countries aware the especial role of scientific, research and inventive activities in reaching the global competitiveness under the current conditions of the information economy formation; therefore every year they increase or maintain the high level of R&D funding. Moreover, this vision is held by the subjects of different sectors of the economy: business enterprise sector (64% of total expenditures on R&D in 2015; and 61.8% - in 2010), government sector (12% - in 2015; 12.9% - in 2010), higher education sector (23.2% - in 2015; 24.3% - in 2010), private non-profit sector (0.8% of total expenditure) [2; 11].

The economic statistical analysis allows to

identify that in Ukraine the prevailing share in the R&D financing is the business sector funding – 61.9% in 2016; the entrepreneurs demonstrate the increasing interest in conducting scientific research (mostly – applied research) [11]. In our opinion at the national level it is expedient to implement a set of measures to motivate and intensify the participation of domestic enterprises in research activities, to minimize control procedures, to prevent corruption and to eliminate bureaucracy.

The government sector accounts for 31.8% of the total funding for research and development in Ukraine [11] that is overestimated in comparison with the European Union average. At the same time, it should be noted that 91.7% of the expenditures on fundamental research in 2016 were financed by the state budget [11]. The national economy growth, the country's global competitiveness, the innovation development, scientific and technical development under the conditions of information economy formation requires the organizational and financial support to individual scientists, educational and research institutions from the government. However, the actual trends of global development prove the necessity of implementing of effective motivating mechanisms for business sector's active involvement into research activities – both applied and fundamental researches focused on achieving sustainable long-term effects.

In Ukraine in 2016 only 6.3% of R&D expenditures were financed by the higher education sector [11] that is a low level, especially taking into account the potential of domestic higher education institutions and research institutes. The financial problems of the higher education sector are objective reasons of low funding amounts on research and development activities. Thus, the financing model of Ukrainian higher educational institutions requires the modernization and further improvement in order to create favorable conditions for: 1) integration of HEIs into the economic environment as economic subjects; 2) realization of HEIs' potential in the direction of activating the processes of the information economy formation through the transfer and commercialization of knowledge, in-

formation and technologies generated in the higher education sector; 3) implementation of effective communication model within the helix “state - business - education - public” [1]; 4) increasing the investment, diversification of financing sources.

Conclusions. Improvement of the financing model and mechanisms of the higher education sector of Ukraine should be implemented on different levels. In particular, at the macro level the government should guarantee transparency, anti-corruption, and objectivity of financing processes; to widen the financial autonomy of educational and scientific institutions; to optimize their structure, research themes.

In our opinion it is appropriate to implement the competitive-grant-project financing scheme at higher educational institutions and research institutes in Ukraine, which is based on the principles of competition, self-organization and self-development. The introduction of mentioned financing scheme requires the qualified educational management and highly skilled expert network of domestic and foreign stakeholders. It is important to strengthen the government role (also – financial support) in research activities, because their results have direct correlation with the achievement of the state strategic goals; ensuring the country's competitiveness and economic security; innovation processes activation; and the level of economic growth.

In modern conditions of growing resource constraints the diversification of financing sources of the higher education sector of Ukraine is becoming urgent. The information economy formation encourages the entrepreneurship structures to focus their activities on innovative development that is accompanied with the increasing of demand for information resources, innovations, technical inventions, and information and communication technologies. Therefore the modern business sector demonstrates the growing interest in wide cooperation with higher educational institutions and research institutes (contracts on research activities, gift contracts, expert and consulting services, joint initiation and implementation of innovative projects, commercialization of achieved research results, etc.).

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