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Funding of Ukrainian universities: Current situation and possible ways of its solution

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Abstract: The article provides a comparative analysis of Ukrainian education funding and funding education of some developed countries. The relationship between the financing of education and GDP is shown in article. It proved the importance of higher education in economic development of the country. However, despite the importance of higher education, Ukrainian universities have significant difficulties. Three groups of the challenges are discovered that are faced today Ukrainian universities. All groups of problems mentioned above, which the higher educational institutions deal with, cause the worsening of their financial situation and result in the disadvantage of the national science and education. Expenditures on education and science are offered viewed as an investment in human capital and the country's economy. Such investments in the sphere of education have proved to be correct, because the reversible effect is seen. These are those countries, which are the leaders in the amount of GDP in the world. That is, the investments in education are justified for both the country and the individual. So, the system of higher education is very important for future economic development of Ukraine. But it doesn't have enough financial resources for successful existence. All this results in looking for the intensive means of financial support of the higher educational institutions, the most important of which can be financial diversification and broadening of the institution autonomy.

Keywords: education finance, education expenditures, knowledge-based economy, economic growth

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1. Introduction

The conception of knowledge as the source of economic development caused the appearance of new notion ''knowledge-based economy''. Knowledge (not so much the philosophic category, but the economic one) is becoming the major source of wealth of nations in the companies and countries. In the developed countries the amount of companies and institutions industrial assets is closely connected with their ability to generate new knowledge, intellectual capital.

Knowledge-based economy is becoming the base and the main component of ''innovation economy''. Its fundamental basis is productive knowledge and proper education, which characterizes the ability to apply humanitarian-intellectual capital in the production activity outcomes.

The main difference between the ''knowledge-based economy'' and so-called ''goods-based economy'' is that of continuous technological improvement of the production and self-reproduction of its knowledge factors, not their tearing away in the process of economic exchange, their quick renovation and relative availability to be applied.

The balance between the knowledge and resources has shifted so sufficiently towards the first one, that the knowledge has become one of the major factors in evaluating the living standards – more important than land, instruments or labour. Nowadays the most highly technologically developed economies are based on knowledge.

During the last 200 years neo-classic economics determined only two factors of production: labour and capital. Now it is different. The knowledge strengthens the capital and energy, having become the main assets of welfare, similar to those capitals and energy, which have changed the land and labour 200 years ago. Moreover, technological developments of the 20th century have changed the main professions, which provide welfare, from those based on physical labour to those ''based on knowledge''. Technologies and knowledge today are the key factors of production.

In the system of the knowledge-based economy education plays the most important role as the source of intellectual capital and innovation potential of the nation, the sphere of total adaptation of the society to paradigm socio-cultural changes and the main way of acquiring the social skills and qualification individually. Educations, training of stuff, development of creativity are the main directions of the human capital formation, which is the source of strategic competitiveness and social profit in the future.

2. Analysis of the problem

In modern society education is becoming the element of the economic growth strategy. Sufficient stimulus for the development of this sphere of activity has become the recognition and propagation of the human capital theory and, as the result, the education has not been treated yet as one of the types of the non-profitable consumption, but as the investments in human capital, which not only contribute to the direct economic and outside social advantages, but promote the economic growth. Thus, let us compare expenses for education in the countries – members of OECD and Ukraine.

Table 1. Expenses for education in absolute values, 2012

Country	Amount of DGP, $ billions	Expenses for education as a part of DGP, %		Expenses for education in absolute values, $ billions		Expenses for education in absolute values, per 10 thousand of population, $ thousands	
		All education	Higher education	All education	Higher education	All education	Higher education
USA	14991	7,3	2,6	1094,3	389,8	34867	12420
Germany	3604	5,3	1,3	191,01	46,85	23493	5762
France	2776	6,3	1,5	174,9	41,6	26773	6368
United Kingdom	2429	6,0	1,3	145,74	31,6	23116	5012
Canada	1737	6,1	2,5	109, 96	43,43	32058	12662
Australia	1515	6,0	1,6	90,9	24,24	41289	11010
Korea	1116	8,0	2,6	89,28	29,02	18272	5939
Sweden	539	6,7	1,8	36,11	9,7	39665	10655
Belgium	514	6,7	1,5	34,44	7,71	32994	7386
Austria	418	5,9	1,4	24,66	5,85	29392	7973
Denmark	332	7,9	1,9	26,23	6,31	47317	11383
Finland	263	6,4	1,9	16,83	5,0	31978	9500
Ireland	221	6,3	1,6	13,92	3,54	29479	7497
New Zealand	163	7,4	1,6	12,06	2,61	27865	6031
Ukraine	162	8,1	1,16	13,12	1,88	2862	410

Compiled by the author basing on Education at a Glance 2013

As it is seen from Table 1, the financing of education in Ukraine, higher education in particular, leaves much to be desired. Although, relating to DGP the value is rather high (8,1 %), in terms of money the expenses for education are 13 billion dollars, for higher education 1,88 billion dollars in particular. If the expenses for 10000 of population are taken into account, one could not console himself. Totally Ukraine spends for education 2862 thousand of dollars, 410 thousand of dollars for higher education. If we compare general expenses for education for 10000 of population, they are in 10 times higher in Austria, Ireland, Belgium, New Zealand, and in 15-20 times higher in Denmark, Australia, Canada, Sweden, USA. Those are the countries, which are the world leaders in economic and social development and their expenses for education can be treated as the strategic investment in the economy of their country.

On the Table 2 the dynamics of GDP in Ukraine, expenses for education, higher education in particular, are presented.

Table 2. Dynamics of GDP and expenses of the total budget for education

Data	2005	2006	2007	2008	2009	2010	2011	2012
GDP, mln of doll	87416	107753	142719	187733	114168	135321	162759	176111
Coefficient of GDP growth (chain)	1,28	1,23	1,32	1,32	0,96	1,19	1,2	1,08
General expenses of the total budget for education, totally, mln of doll	4951,9	6554,5	7722,9	12071,1	8228,9	9665,4	9875	11512,5
for higher education, mln of doll	1571,1	1680,6	2231,2	3673,7	2620,8	3124,8	3327,5	3509,6
General expenses of the total budget for education, in % of GDP	5,7	6,1	5,4	6,4	7,2	7,1	6,1	6,5
General expenses of the total budget for higher education, in % of GDP	1,8	1,6	1,6	2,0	2,3	2,3	2,0	2,0
Coefficients of the growth of general expenses of the total budget for education, totally (chain)	1,37	1,32	1,18	1,56	1,08	1,17	1,02	1,17
Coefficients of the growth of general expenses of the total budget for higher education, (chain)	1,36	1,07	1,33	1,65	1,13	1,19	1,06	1,05

Calculated by the authors according to the data of State Statistics Service of Ukraine

The results of the analyses of the higher education financing in Ukraine are somehow contradictory: if relative data are considered to be the base (the portion of expenses for higher education in % of GDP), the data on Ukraine correspond the situation in the developed countries, but if the absolute data are considered, Ukraine has sufficiently smaller expenses for financing of education as compared with developed countries.

But in spite of low GDP and insufficient financing the branch of the higher education and science is one of the spheres of economic activity, which still makes possible for Ukraine to stay in leading positions of the world rankings. In 2012 in the Global innovation index ranking Ukraine was the 63rd among 141 countries of the world, and the 60th among 125 countries in 2011. The factors, which specify the quality of innovation activity, are those, which characterize the level of the higher education development and situation in the sphere of investigations and developments. Thus, according to the data on the development of higher education Ukraine in 2012 is the 34th (39th in 2011), according to the data on the engagement in higher education studies is the 8th , according to the portion of graduates in scientific and engineering fields – is the 19th.

According to the results of scientific investigation in 2012 Ukraine is on the 30th place (40th in 2011), and, according to such factors as creation of new scientific knowledge, which are characterized by the number of

patents and scientific articles - 21st place, spreading of knowledge – the 55th place, the effect of knowledge– the 66th place.

In the ranking of Global competitiveness' index in 2012-2013 Ukraine was on the 73rd place among 144 countries of the world (in 2012-2013 – 82nd), demonstrating its main competitive advantages – education and market content.

In some branches (mathematics, applied physics, chemistry, biotechnology, material studies, welding technology, protection and reinforced coating technology, space engineering, etc) our science is rival enough. Investigations and developments of scientists of Ukraine are in great demand, which is confirmed by the proposals of foreign offerers and is over 20% of general financing of scientific-investigation and experimental-design activity. The science of Ukraine is capable to provide international scientific-technological and innovation cooperation.

In gross value added (GVA), created in 2012 by the country, the specific value of education was 6,2% (9,4 bill doll), which is two times higher, than that in construction engineering. During last years the amount of GVA in the field of education is approaching the data in mining industry (10,4 bill doll in 2012).

In spite of such achievements Ukraine higher educational institutions are still the most unprestigeous in the world. According to the QS World University rankings 2014/2015, Kiyv National University named after Taras Shevchenko (421- 430 place) and Kharkiv National University named after V. N. Karasin (481- 490 place) are in 500-top.

Contradictory processes, which have place in the sphere of higher education of Ukraine, are caused by special reasons. Some most specific problems, the Ukraine Universities deal with, can be named:

The first group of problems the sphere of education deals with is: great number of higher educational institutions, misrepresented competition, relative assessment criteria, demographic crisis, lack of students, and transfer-students to neighboring countries, etc.

There are more than 800 higher educational institutions in Ukraine, 250 of which are Universities. The number of higher educational institutions of the III – IV level of accreditation has increased from 149 (1990/91) to 345 (2011/12). Ukraine does not need to have such number of educational institutions that is why it is reasonable for the system of higher education and improvement of the quality of education to decrease the number of such institutions.

On the contrary, in spite of the increase of the number of institutions, the enrollment in them decreases from year to year. It is confirmed by the figures presented on table 3.

Table 3. Number of students enrolled in higher educational institutions of Ukraine

Data	Higher educational institutions of I-IV levels of accreditation							
	1995/96	2000/01	2005/06	2007/08	2008/09	2009/10	2010/11	2011/12
Number of students enrolled, person totally	1540498	1930945	2709161	2813798	2763873	2599426	2491288	2311557
Number of students admitted, person totally	395638	536436	672257	633746	539614	463911	521114	419616
Number of graduates, person totally	339114	422227	515055	602662	623258	642056	654670	626549
Number of students, per 10 000 of population	300	392	578	606	599	566	544	507

Calculated by the authors according to the data of State Statistics Service of Ukraine

As it is seen from Table 3 since academic year 2008/09 the number of graduates from the higher educational institutions has exceeded greatly the number of those enrolled in the first year of study. It could not be expected in Ukraine earlier. Since that year the drop of number of students per 10 000 of population can be noticed. This phenomenon is caused by the demographic crises. Demographic crises in Ukraine, which was the result of sharp drop of newborns, results now in small number of school-leavers, who are the applicants of the higher educational institutions. In Fig.1 the interrelation of these processes are presented.

In the left Figure the dynamics of newborns number in 1990-2010 is presented, in the right Figure - the dynamics of the number of school-leavers in the full time studies with the span of 17 years. In Fig.1 the direct dependence between the number of newborns and the number of school-leavers in 17 years is clearly seen.

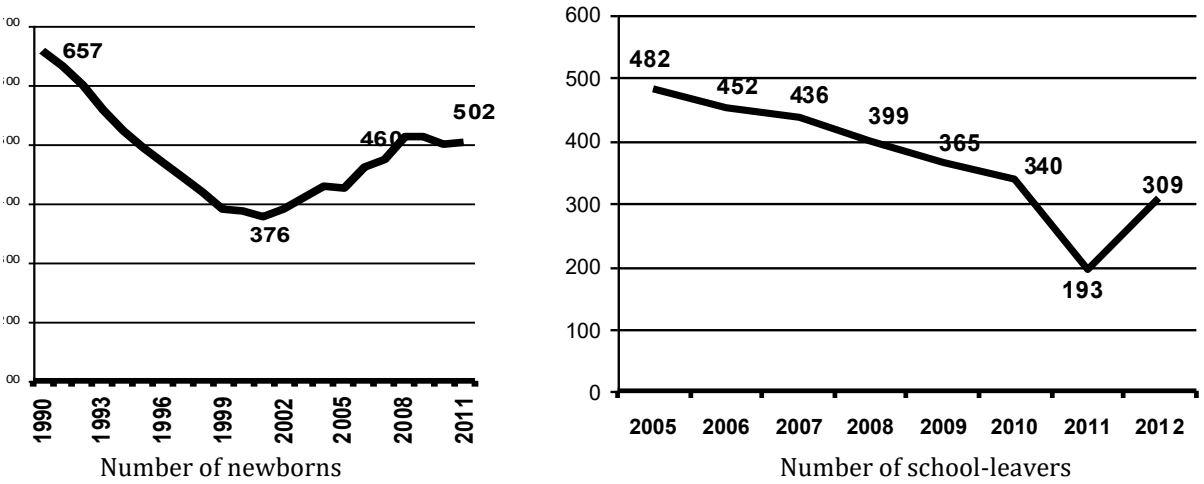

Figure 1. Interrelation between the number of newborns and of school-leavers

If we take into account that in 2014, the University enter those born in 1997, dramatic situation can not be considered the worst. It can be expected not earlier than in 2017.

Besides demographic crises the disadvantages consequences for the higher educational institutions of Ukraine are caused by the neighboring countries, which attract our school-leavers. According to the results of 2012/13 the leaders are: Poland, Germany, Russia, USA, Czech Republic, Italy, Spain, France, Canada, Australia, and Great Britain.

Table 4. Number of Ukrainian student abroad (full-time studies)

Country	Academic year				
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Germany	8557	8818	8830	8929	9044
Russia	4236	4055	4919	4644	4644
Poland	2831	3499	4879	6321	9620
USA	1716	1727	1583	1535	1490
France	1349	1388	1447	1482	1282
Czech Republic	1046	1364	1456	1647	1782
Hungary	829	896	862	763	803
Italy	800	1043	1314	1556	1727
Austria	739	855	926	1055	1249
Australia	614	636	721	692	636
Spain	558	641	840	1114	1323
United Kingdom	535	605	670	825	905
Canada	470	606	655	760	1097
Bulgaria	275	296	333	367	411
Switzerland	292	318	336	358	371
Sweden	259	254	430	419	291
Turkey	209	198	208	232	282
Latvia	61	259	214	183	188
Finland	114	123	145	180	178
Moldova	271	235	202	157	165
Belarus	186	182	180	181	152
Netherlands	89	83	99	100	106
Total	**26036**	**28081**	**31249**	**33500**	**37746**

Calculated by the authors according to the data of State Statistics Service of Ukraine

As it is seen from Table 4 the number of Ukrainian student abroad increases annually. The main task of the higher educational institutions today is teaching students and training highly-qualified specialists, which are in

great demand in the labor market. So, Ukraine looses its human capital and the system of higher education obtains less funds in the form of education fee, which our students would pay, if they studied in Ukraine.

2) The second group of problems the sphere of education deals with now is the branch of science – lack of investigation commercialization, the gap between fundamental and applied investigations, lack of orders because of undeveloped innovation activity. Nowadays there is a great gap between the science and real industrial process at the enterprises, which is testified by the data on Table 5.

Table 5. Application of innovations at the industrial enterprises of Ukraine

Year	Specific value of enterprises, which applied innovations, %	New technological processes applied	In small-waste process; resource-saving process	Innovation products put into production	Among them new type of machinery	Specific value of sold innovation products in the industrial volume, %
2003	11,5	1482	606	7416	710	5,6
2004	10,0	1727	645	3978	769	5,8
2005	8,2	1808	690	3152	657	6,5
2006	10,0	1145	424	2408	786	6,7
2007	11,5	1419	634	2526	881	6,7
2008	10,8	1647	680	2446	758	5,9
2009	10,7	1893	753	2685	641	4,8
2010	11,5	2043	479	2408	663	3,8
2011	12,8	2510	517	3238	897	3,8
2012	13,6	2188	554	3403	942	3,3
2013	13,6	1576	502	3138	809	3,3

Calculated by the authors according to the data of State Statistics Service of Ukraine

As it is seen from Table 5, only 13,6% of national enterprises were applying innovations for last two years, all previous years this portion was smaller. Thus national science has large potential consuming market for application of scientific development and it covers 86,4% of national enterprises.

3) The next group of problems the higher educational institutions deal with is the bureaucracy of administration and the variety of possibilities to influence on the universities while manipulating by the restricting and regulation procedures.

The higher educational institutions of Ukraine are special subjects of management. Most Ukrainian educational institutions possess great land resources, hostels, machinery, recreation institutions, etc. But most of them are the state property, that is why all their assets are of the state property too, that is why there are some restrictions as to their management by the state. The administration of the institutions is not allowed to make arrangements.

Results and Discussion. All groups of problems mentioned above, which the higher educational institutions deal with, cause the worsening of their financial situation and result in the disadvantage of the national science and education.

Nowadays they need some additional financial resources. Financial resources invested in the higher education must be treated not only as expenses, but as the investments too.

Such investments in the sphere of education have proved to be correct, because the reversible effect is seen. These are those countries, which are the leaders in the amount of GDP in the world. That is, the investments in education are justified for both the country and the individual, and the rates of profit are different for different countries, which are testified by the data on Table 6.

Table 6. Profit rate for a person with University degree

Country	Profit rate, when a person took University degree after completion of the secondary school, %		Profit rate, when a person took University degree at the age of 40, %	
	for the state	for the person	for the state	for the person
Belgium	15,0	12,98	10,0	24,08
United Kingdom	14,9	18,21	7,4	13,16
Denmark	7,4	8,21	2,2	11,30
Korea	15,5	13,56	12,3	21,34
Norway	9,7	13,89	4,4	15,77
USA	13,6	13,73	7,8	11,33
Hungary	15,9	18,79	12,5	22,23
Finland	12,4	16,33	9,7	14,74
Switzerland	6,1	9,90	- 0,4	15,77
Sweden	6,9	8,57	2,7	9,33

Compiled by the author basing on (Education at a Glance 2012)

While analyzing the data from Table 6 it should be stressed, that the profit rate from the investments in education is high enough for both the country and the individual. In some cases it exceeds the average profit rate for the industrial enterprises. Such type of investments is reasonable in all aspects, as they always contribute to economic and social advantages.

3. Conclusion

Knowledge, as the result of educational activity, are transformed into technologies and products of the science-based production, promote the increase of labour efficiency, decrease the material and energy-consuming, raise the competitiveness of the social production, accelerate the rate of accumulation of the social profit, changing the motivation of the labour activity, thus being the factor of post-industrial economic growth. Intellectual capital is able to bring the highest profit for every unit of additional investment, providing not only the high profitableness of the production and reliable competitive advantages in the world markets, but creating the background of the strategic profit for innovative investments.

So, the system of higher education is very important for future economic development of Ukraine. But it doesn't have enough financial resources for successful existence.

To solve the problem of financial support of the higher educational institutions of Ukraine by the extension method is impossible because of the contemporary situation in the country, decrease of the budget and the number of newborns and the number of higher institutions applicants accordingly.

All this results in looking for the intensive means of financial support of the higher educational institutions, the most important of which can be financial diversification and broadening of the institution autonomy.

Transition to financial diversification means searching for new sources of financial resources. Universities of Ukraine have the list of services, according to which they can earn money. But the University's revenues are considered the budget funds and Universities can't spend them on their own. Paid services of universities are very limited. It is banned to invest them in business. Financial activity of universities is very primitive - obtaining funds from the budget and spending them according to budget classification of expenditures. In the conditions of financial resources lack, universities must be allowed to spend them in own business and investments.

Within the diversification process the higher educational institutions must pay special attention to:

– broadening of the types of institutions financial-economic activity;

– providing honest competition in the institutions activity, basing on the quality of knowledge and not on the protection of the Ministry;

– commercialization of the scientific investigations and development of the innovation sphere of the institutions;

– broadening and improvement of the marketing activity;

– banning of restrictions for the institution assets management.

Financial diversification is impossible without decentralization of management and autonomy of Universities of Ukraine. For business and investment activities Universities have to obtain autonomy and decentralization of management. The Ministry of Education doesn't see and know true economic situation in certain university. More over, Ukrainian Universities need professional financial managers for managing of their financial recourses. Finance in Ukraine universities is run mostly by people, who do not have economic training, they are known scientists in their field, but they do not have any experience in financial management. We must change all structure of financial management in our universities. With this in mind we propose to improve the management of the institutions financial resources, which is shown in Fig. 2.

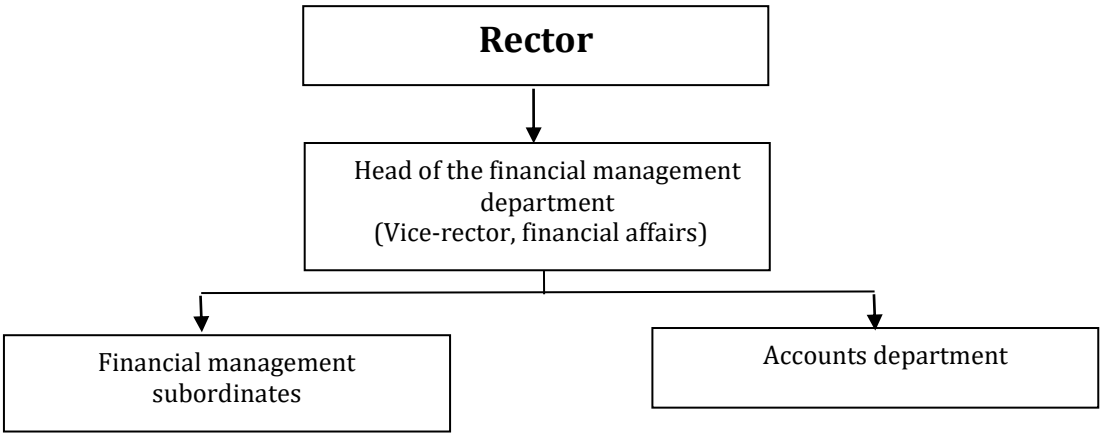

Figure 2. Proposed model of Ukrainian universities financial resources management

Presented ideas will help to solve the problem of insufficient financing of higher educational institutions and to improve sufficiently the available financial assets management.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://sepd.tntu.edu.ua/images/stories/pdf/2015/15knaois.pdf

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