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ECONOMIC EFFECTIVENESS OF STATE REGULATORY POLICY IN REGIONAL HIGHER EDUCATION

The article justifies that the arrival of students from other regions to a certain area for full-time education leads to the additional load on the regional infrastructure. Thus, the problem of optimal educational facilities load in higher education institutions of regions could be solved with minimum investment. The paper defines the state economic policy in higher education and the system of measures that would allow avoiding the reduction in the level of social and organisational services for students who arrived to a region for obtaining higher education as well as for permanent residents.

Keywords: higher education; regional infrastructure; investment; economic effect.

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ЕКОНОМІЧНА ЕФЕКТИВНІСТЬ РЕГУЛЯТОРНОЇ ПОЛІТИКИ ДЕРЖАВИ У СФЕРІ РЕГІОНАЛЬНОЇ ВИЩОЇ ОСВІТИ

У статті обґрунтовано, що прибуття в певний регіон на стаціонарне навчання абітурієнтів з інших регіонів пов'язане з додатковим навантаженням на інфраструктуру регіону. Розв'язано задачу оптимального завантаження потужностей вищих навчальних закладів регіонів за критерієм мінімізації капіталовкладень. Визначено економічну політику держави у сфері вищої освіти та систему заходів, які б дозволили не знизити рівень соціально-побутових послуг як для студентів, що приїхали в регіон для здобуття вищої освіти, так і для постійних мешканців.

Ключові слова: вища освіта; інфраструктура регіону; капіталовкладення; економічний ефект.

Форм. 6. Табл. 2. Рис. 2. Літ. 13.

Инна С. Кочарян

ЭКОНОМИЧЕСКАЯ ЭФФЕКТИВНОСТЬ РЕГУЛЯТОРНОЙ ПОЛИТИКИ ГОСУДАРСТВА В СФЕРЕ РЕГИОНАЛЬНОГО ВЫСШЕГО ОБРАЗОВАНИЯ

В статье обосновано, что прибытие в определенный регион на стационарное обучение абитуриентов из других регионов связано с дополнительной нагрузкой на инфраструктуру региона. Решена задача оптимальной загрузки мощностей высших учебных заведений регионов по критерию минимизации капиталовложений. Определена экономическая политика государства в сфере высшего образования и система мер, которые бы позволили не снизить уровень социально-бытовых услуг как для студентов, которые приехали в регион для получения высшего образования, так и для постоянных жителей.

Ключевые слова: высшее образование; инфраструктура региона; капиталовложения; экономический эффект.

Problem setting. Higher education, as a form of economic activity plays an exceptional role in the national economy of Ukraine. Intellectual, academic and creative potential are concentrated in it. This area is aimed to prepare highly qualified specialists for all sectors of the economy, as well as for state administration and local self-government.

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Under the conditions of insufficient funding it is important to develop effective financial and economic mechanisms of supporting educational activities and the chosen course of economic policy of higher educational institutions (HEI), which should provide improved management system for main activities of HEI on the one hand, and grounding strategies for its development under the existing socioeconomic conditions on the other.

State policy provides complete freedom for population in decision-making on the choice of not only the area of training and specialty, but also the place of getting higher education. But the arrival of students from other regions to a certain area for full-time education is connected with additional load on the region's infrastructure, which is oriented to provide social and organisational services not only for students, but also to permanent residents of this region.

Research and publications analysis. The works of famous European and world scientists are devoted to the research on the contemporary problems of education. This topic was explored by E. Bruking (2001), V.P. Bukin (2008), V.A. Demidov et al. (2008), P.F. Druker (2002), T. Yeliseieva and V. Baturin (2005). The research on the issues of higher education modernization in Ukraine was held by Ukrainian scientists I. Kaleniuk and K. Korsak (2009), V. Kremen (2003), V. Luhovyi (2009) and others. National education policy and management of education were explored by V. Andrushchenko (2005), V.I. Kutsenko (2009), N.F. Stebliuk (2012) and others.

Unresolved issues. In scientific literature the attitude to the needs of regional economy for specialists with higher education and social needs hasn't received a wide coverage. There are problem issues concerning the necessity to enhance the quality of specialists' training, their competitiveness and educational conditions, essential in the development of economic policy in higher education, and this is not reflected in any Ukrainian, or foreign research.

The aim of the research is a solution to the problem of optimal university facilities load in the regions by the criterion of minimizing investments and matching the solution to this problem with the necessary investments for detection of reserves for investments reduction, that is determining the potential economic impact.

Key research findings. Economic policy of state in higher education should include the system of measures that would allow avoiding the reduction of social and organisational services level for students who come to the region for getting higher education as well as for permanent residents.

Indeed, the creation of educational facilities for the provision of higher education is not only the construction of educational buildings, equipment with necessary material and information resources and personnel, but also housing and sociocultural arrangement, development of transport network and communications, healthcare system, social assistance, fields of culture, leisure, sport and tourism etc.

The basis for these measures is the provision of additional investments in the municipal social area.

The cost of permanent assets by types of economic activity (TEA) is associated with the provision of public services $K = 4,400,009$ mln UAH (Statistical Yearbook of Ukraine for 2011, 2012); the total value of permanent assets of the national economy $K_0 = 6,648,861$ mln UAH (Statistical Yearbook of Ukraine for 2011, 2012); and therefore, the share of the concerned TEA is $k_0 = 0.66$:

$$k_0 = \frac{K}{K_0}. \quad (1)$$

Thus, the share of permanent assets of the noted types of economic activities is

$$k_0 = \frac{4400009}{6648861} = 0.66. \quad (2)$$

In respect of wear $f = 0.749$ (Statistical Yearbook of Ukraine for 2011, 2012: 93) the cost of permanent assets, which are aimed to provide social and organisational services countrywide on average is:

$$K_{soc} = k_0 K_0 (1 + f) = 0.66 \times 6648861 \times 1.749 = 7675046 \text{ mln UAH}. \quad (3)$$

Specific investments to maintain social and organisational services for citizens at the basic level (per capita):

$$k_{soc} = \frac{K_{soc}}{S} = \frac{7675046}{45.6} = 168 \text{ ths UAH}, \quad (4)$$

where S is the number of population (45.6 mln people) (Statistical Yearbook of Ukraine for 2011, 2012).

Thus, the average specific cost of permanent assets of relevant types of economic activities, which provide public with social and organisational services countrywide on average, in respect of wear is 168 ths UAH per capita.

But this index has significant deviation by regions in which universities are located. For example, educational facilities providing higher education in the fields of "culture" and "art" are concentrated in the universities of 6 regions. The demand for services in this field is presented in all the regions of Ukraine, but only 6 regions have appropriate facilities, the remaining areas are reduced to the group "Other regions".

In Table 1 we show the necessary input information for calculating specific investments.

Table 1. Permanent assets, the degree of its wear and number of population by regions

No.	Region, r	Permanent assets K_r , mln UAH	Degree of wear of permanent assets f_r , %	Number of population S_r , persons
1.	City of Kyiv	1025952	53.3	2772951
2.	Kharkiv Region	735772	88.7	2726544
3.	Lviv Region	207220	70.1	2522568
4.	Odesa Region	172682	52.7	2377237
5.	Donetsk Region	454778	64.5	4390293
6.	Luhansk Region	122542	55.9	2268079
7.	Other regions	3929915		28395610
8.	Ukraine, total	6648861	74.9	45453282

Source: Statistical Yearbook of Ukraine for 2011, 2012: 85, 321.

The cost of permanent assets in respect of their wear for each region is

$$K_r^1 = k_0 K_r (1 + f_r), \quad r = \overline{1,6}, \quad (5)$$

where k_0 is the ratio of cost of permanent assets of TEA, which provide personal and social services to the total cost of permanent assets ($k_0 = 0.66$); K_r is the cost of permanent assets of r region, mln UAH; f_r is the degree (coefficient) of wear of permanent assets in i region, in fractions of a unit.

Specific investments by regions are determined by the formula:

$$k_0 = \frac{K_r^1}{S_r}, r = \overline{1,6}, \quad (6)$$

where S_r is the number of population of r region.

According to (5), (6) and the input information in Table 1 let's calculate the cost of permanent assets by regions, taking into account the degree of wear and specific investment per person.

Table 2. The results of calculations of specific investments taking into account wear of permanent assets (PA) of regions, author's development

No.	Region, r	Cost PA O3 K_r^1 , taking into account wear, mln UAH	Specific investments k_r , $\frac{\text{ths UAH}}{\text{person}}$
1.	City of Kyiv	1038038	374
2.	Kharkiv Region	916345	336
3.	Lviv Region	232638	92
4.	Odesa Region	174032	73
5.	Donetsk Region	493752	112
6.	Luhansk Region	126088	56
7.	Ukraine, total	7679434	169

Thus, depending on the distribution of applicants by regions for getting higher education the need for investment varies. The greater part of the population demand is satisfied with educational facilities of a region, the less investments should be allocated to the social sector. In this regard, it is advisable to correct the regulatory state policy in the field of regional higher education with the criterion of additional investment.

Analysis of admission and structure of students, for example in the field of cultural and art, shows that about 45% of their total number consist of the applicants who enter a university in a region (city), in which they reside. Thus, moving to study, 55% of the students request additional investment in social sphere of the cities that provide educational services.

In real load of educational facilities of universities in the field of culture and art (i.e. maintaining the proportions 0.45:0.55) the need for capital investments is 845,681 ths UAH. The load of educational facilities and the calculation of the objective function (minimizing investments) are shown in Figure 1.

Lines 1...6 and columns 1...6 correspond to the regions defined in Table 2, column 7 to other regions, column 8 to a fictitious region introduced to transform the task into a closed one.

To identify the reserves for investments reduction, that determine the potential economic impact, it is necessary to solve the task of optimal load of university facilities of the regions on the criterion of minimizing investment and matching the solution to this problem with the necessary investments in real existing proportion.

In real load of university educational facilities of the regions in the cultural field the need for investments is 845,683 ths UAH (Figure 1).

While solving the task of optimal load of educational facilities using Excel (Search solutions) on the criterion of minimizing investment in the development of

CRIT= 845 683,10

C=	0	374	374	374	374	374	374	374	0
	336	0	336	336	336	336	336	336	0
	92	92	0	92	92	92	92	92	0
	73	73	73	0	73	73	73	73	0
	112	112	112	112	0	112	112	112	0
	56	56	56	56	0	56	0	56	0
	1102	755	224	270	265	262	3560	5121	
X=	495,90	0,00	0,00	0,00	0,00	0,00	0,00	0,00	3630,10
	507,42	339,75	76,77	56,77	137,72	123,65	950,02	1490,90	
	0,00	100,35	100,80	33,44	8,03	16,79	340,59	0,00	
	47,27	105,31	21,02	121,50	0,00	2,42	137,47	0,00	
	19,34	104,21	21,02	28,56	119,25	1,24	106,37	0,00	
	32,07	105,38	4,38	29,73	0,00	117,90	2025,54	0,00	
	1102	755	224	270	265	262	3560	5121	
	11559	1102	755	270	265	262	3560	5121	4126
									3683
									600
									435
									400
									399,99
									2315
									11559

Figure 1. Calculation of the required investment in real scheme of load of educational facilities, author's development

C=	0	374	374	374	374	374	374	374	0
	336	0	336	336	336	336	336	336	0
	92	92	0	92	92	92	92	92	0
	73	73	73	0	73	73	73	73	0
	112	112	112	112	0	112	112	112	0
	56	56	56	56	56	0	56	56	0
	1102	755	224	270	265	262	3560	5121	
X=	1102	0	0	0	0	0	0	0	3024
	0	755	0	0	0	0	831	2097	
	0	0	224	0	0	0	375	0	
	0	0	0	270	0	0	165	0	
	0	0	0	0	265	0	135	0	
	0	0	0	0	0	262	2053	0	
	1102	755	224	270	265	262	3560	5121,00	11559
									4126
									3683
									600
									435
									400
									2315

CRIT= 455 941,00

Figure 2. The results of optimal solution to the task of educational facilities load, author's development

permanent assets of social and organisational services area we receive the optimal plan (Figure 2), in which the need for investments is 455,941 ths UAH (the value of the optimality criterion).

Comparison of the results of the optimal option with the real distribution of educational facilities demonstrates the possibility of saving investments in the amount of 389,742 ths UAH (845,683 – 455,941). This amount can be recognized as savings in the transition from the real to the optimal plan. However, since the transition to the optimal plan cannot be implemented by the decisions of state authorities (the right to choose a place for higher education belongs to applicants), the optimal plan should be considered by central executive bodies, local governments and universities administration as a guideline when making activities, which draw the real situation closer to the optimal one.

Thus, the potential economic impact will be determined by the degree of approximation to the optimal option. This measure is determined by the part of students-inhabitants of the region, where they receive higher education, in the total number of students.

The figure shows the values of the optimality criterion for each value of the share of local students who are educated in the universities of their native region.

The potential economic impact is defined as the difference in the necessary investments in the real case (45%) and the option that is achieved by the implementation of the focused policy. Productivity of decisions in state regulation on this problem is measured by the share of local students in the total number of students in each region. Depending on the carried by state and university administration solutions a certain level of educational facilities load with local students is achieved. Depending on the achieved level the economic impact is determined as a result of the investment savings.

Conclusion. A set of regulatory measures depends on the characteristics of a region and fields of knowledge, but such measures as motivation of young people to get higher education in the universities in the regions they live, creation and development of educational facilities, more consistent with the needs of regional economy for specialists and social needs of population in the regions, improving the quality of training specialists, their competitiveness and studying conditions may be referred to those tasks, which are essential in the development of economic policy in higher education.

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КНИЖКОВИЙ СВІТ



СУЧАСНА ЕКОНОМІЧНА ТА ЮРИДИЧНА ОСВІТА ПРЕСТИЖНИЙ ВИЩИЙ НАВЧАЛЬНИЙ ЗАКЛАД НАЦІОНАЛЬНА АКАДЕМІЯ УПРАВЛІННЯ

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Маркетинг: Підручник / За заг. ред. д.е.н., проф. М.М. Єрмошенка, д.е.н., проф. С.А. Єрохіна. — К.: Національна академія управління, 2011. — 632 с. Ціна без доставки — 140 грн.

Має гриф підручника від МОН України.

У підручнику в концентрованому вигляді викладено зміст усіх нормативних дисциплін по спеціальності «Маркетинг». По кожній з дисциплін базового курсу пропонуються контрольні питання, тести, глосарій і література.

Для викладачів, майбутніх бакалаврів і магістрів, аспірантів, маркетологів-практиків, наукових працівників, а також для всіх, хто цікавиться сучасними технологіями маркетингу.

Зміст

- Розділ 1.** Базовий маркетинг
- Розділ 2.** Маркетинговий менеджмент
- Розділ 3.** Маркетингові дослідження
- Розділ 4.** Товарознавство
- Розділ 5.** Стандартизація і сертифікація продукції та послуг
- Розділ 6.** Поведінка споживача
- Розділ 7.** Логістика
- Розділ 8.** Маркетингова товарна політика
- Розділ 9.** Товарна інноваційна політика
- Розділ 10.** Маркетингова політика розподілу
- Розділ 11.** Інфраструктура товарного ринку
- Розділ 12.** Промисловий маркетинг

- Розділ 13.** Інформаційний маркетинг
- Розділ 14.** Маркетинг у банку
- Розділ 15.** Маркетинг послуг
- Розділ 16.** Інформаційні технології в маркетингу
- Розділ 17.** Міжнародний маркетинг
- Розділ 18.** Кон'юнктура світових товарних ринків
- Розділ 19.** Маркетингова цінова політика
- Розділ 20.** Маркетингова політика комунікацій
- Розділ 21.** Рекламний менеджмент
- Розділ 22.** Стратегічний маркетинг
- Розділ 23.** Комерційна діяльність посередницьких організацій
- Розділ 24.** Маркетинг персоналу